

**DATA EVALUATION RECORD**  
**MYSID CHRONIC TOXICITY TEST**  
**GUIDELINE OPPTS 850.1350**

**1. CHEMICAL:** Pyraclostrobin                           **PC Code No.:** 099100

**2. TEST MATERIAL:** BAS 500 F (pyraclostrobin)                           **Purity:** 99.02%

**3. CITATION**

**Authors:** Dinehart, S.  
**Title:** BAS 500 F: Life-Cycle Toxicity Test of the Saltwater Mysid,  
*Americamysis bahia*, Conducted under Flow-Through  
Conditions  
**Study Completion Date:** August 1, 2013  
**Laboratory:** ABC Laboratories  
7200 E. ABC Lane  
Columbia, MO 65202  
**Sponsor:** BASF Corporation  
26 Davis Drive  
Research Triangle Park, NC 22709  
**Laboratory Report ID:** 68248  
**MRID No.:** 49302901  
**DP Barcode:** 420034

**4. REVIEWED BY:** Christie E. Padova, Staff Scientist, CSS-Dynamac Corporation

**Signature:** *Christie E. Padova*                           **Date:** 08/06/14

**APPROVED BY:** Teri S. Myers, Senior Scientist, CDM Smith

**Signature:** *Teri S. Myers*                           **Date:** 08/20/14

**5. APPROVED BY:** Meghan Radtke, Ph.D., Biologist

**Signature:** *Meagan Radtke*                           **Date:** 1/22/15

**6. STUDY PARAMETERS**

<b>Age of Test Organism:</b>	Neonates, <24 hours old
<b>Definitive Test Duration:</b>	31 days
<b>Study Method:</b>	Flow-through
<b>Type of Concentrations:</b>	Mean-measured

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## **7. CONCLUSIONS:**

### **Results Synopsis**

NOAEC: <0.198 µg ai/L

LOAEC: 0.198 µg ai/L

Endpoints affected: F<sub>0</sub> male and female length at 14 days<sup>a</sup>, F<sub>0</sub> male and female dry weight at 31 days, and total young per F<sub>0</sub> female

Most Sensitive Endpoint(s): total young per F<sub>0</sub> female\*

\*The reviewer maintained that the 75% reduction from the negative control in offspring production at the lowest treatment level could not be dismissed. The variability of this response among replicates increased with higher doses and was again significantly lower than the negative control at the highest treatment level ( $p<0.05$ ; Mann-Whitney U test). The study author dismissed the reduction at the lowest level because it was not dose-dependent.

Endpoint	Method	NOAEC µg ai/L	LOAEC µg ai/L
F <sub>0</sub> Survival, Pre-pairing (Day 13) Post-Pairing (Day 14) Entire Study	ANOVA/Dunnett's/William's Mann-Whitney U ANOVA/Dunnett's/William's	2.57	>2.57
F <sub>0</sub> Length, Day 14, male <sup>a</sup>	ANOVA/Dunnett's/Williams'	1.28	2.57
F <sub>0</sub> Length, Day 14, female <sup>a</sup>	ANOVA/Dunnett's/Williams'	1.28	2.57
F <sub>0</sub> Length, Day 31, male	ANOVA/Dunnett's	2.57	>2.57
F <sub>0</sub> Length, Day 31, female	ANOVA/Dunnett's	2.57	>2.57
F <sub>0</sub> Dry Weight, Day 31, male	ANOVA/Williams'	0.365	0.676
F <sub>0</sub> Dry Weight, Day 31, female	ANOVA/Dunnett's/Williams'	1.28	2.57
F <sub>0</sub> Day of First Brood Release <sup>b</sup>	ANOVA/Williams'	1.28	>1.28
Total Young/F <sub>0</sub> Female <sup>c</sup>	Mann-Whitney U	<0.198	0.198
F <sub>1</sub> Survival, day 10	ANOVA/Dunnett's/Williams'	2.57	>2.57

<sup>a</sup> The reviewer did not analyze Day 14 (post-pairing) length data because the CETIS 850.1350 test code does not have a data entry field for mid-study length, only for first generation terminal growth endpoints.

<sup>b</sup> There were only data for one replicate in the 2.57 µg ai/L treatment level, and the lower levels exhibited a monotonically-

increasing trend, so the reviewer analyzed these data using a trend test, excluding the highest treatment level.

<sup>c</sup> A significant 75% reduction was detected at the lowest treatment level, relative to the negative control. The variation among replicate response at this level was low, compared to the highest treatment levels, so the reviewer could not dismiss this response as unrelated to treatment.

## **8. ADEQUACY OF THE STUDY**

**A. Classification:** Supplemental

**B. Rationale:** The study did not establish a definitive NOAEC; the most sensitive parameter – total young per F<sub>0</sub> female – was less than the lowest dose tested (NOAEC < 0.198 µg ai/L).

**C. Repairability:** None. A new study is not being requested at this time because there is another chronic mysid (MRID 46227601) that established a definitive NOAEC of 0.5 µg ai/L, based on parental survival. Using information from both studies, it should be possible to come to a reasonable understanding of the hazard associated with chronic pyraclostrobin exposures.

## **9. MAJOR GUIDELINE DEVIATIONS:**

According to the reviewer's interpretation of the results, a NOAEC could not be determined for this study due to a significant 75% reduction in offspring production at the lowest treatment level, relative to the negative control (p<0.05; Mann-Whitney U test).

## **10. MATERIALS AND METHODS:**

**A. Biological System**

Guideline Criteria	Reported Information
<b>Species:</b> An estuarine shrimp species, preferably <i>Americanamysis bahia</i> .	Mysid shrimp, <i>Americanamysis bahia</i>
<b>Duration of the Test:</b> 28 days	31 days
<b>Source</b> (or supplier) Should originate from in-house cultures.	In-house cultures

Guideline Criteria	Reported Information
<p><b>Parental Acclimation</b>            Within a 24-h period, changes in water temperature should not exceed 1°C, while salinity changes should not exceed 5%              Mysids should be in good health.</p>	<p>Adult mysids used to generate the juvenile test organisms were cultured in artificial saltwater at approximately 20‰ salinity and 25°C temperature.</p>
<p><b>Chamber Location:</b>            Treatments should be randomly assigned to test chamber locations.</p>	<p>Organisms were impartially selected and distributed to test compartments (within the test chambers), and all chambers were randomly arranged in a single water bath.</p>
<p><b>Distribution:</b>  <b>No. of mysids before pairing:</b> Minimum of 40 mysids per concentration    <b>No. of mysids after pairing:</b>            Mysids should be separated into replicate groups of no more than eight individuals when most of the mysids reach sexual maturity (usually 10 to 14 days after test initiation).</p>	<p>90/level: 15 mysids per retention basket, two baskets per replicate aquaria, and three replicate aquaria per treatment level.              21 pairs/level: 1 male:female pair per brood basket, up to seven brood baskets per replicate aquaria, and three replicate aquaria per treatment level.</p>
<p><b>Pairing:</b>            Should be conducted when most of the mysids are sexually mature (usually 10-14 days after test initiation)</p>	<p>Adult mysids were isolated and paired on Day 13.</p>
<p><b>Offspring Exposure:</b>            Live young must be counted and separated into retention chambers at the same concentration where they originated.</p>	<p>The F<sub>1</sub>-exposure phase was initiated with the first 15 (when available) post-larval mysids. The offspring were maintained for up to 10 days in a separate retention basket in the test chamber of origination.</p>

Guideline Criteria	Reported Information
<b>Observations:</b>	<ul style="list-style-type: none"> <li>- Adult mysids were observed daily for mortality, sub-lethal effects, and (post-pairing) reproduction.</li> <li>- Dead mysids were counted, differentiated by gender (if mature), and removed daily.</li> <li>- The number of females with brood pouches was enumerated at the time of first observance until pairing.</li> <li>- The body lengths of all surviving F<sub>0</sub> male and female mysids in the growth-retention basket were measured on Day 14, and the body lengths of all surviving F<sub>0</sub> male and female mysids were measured on Day 31.</li> <li>- Isolated offspring were observed daily for mortality for up to 10 days (see Comment below).</li> <li>- The gender-specific body lengths of offspring were measured after 10 days (see Comment below).</li> </ul>
<b>Feeding:</b> Mysids should be fed during testing. A recommended food is live <i>Artemia</i> spp. nauplii ( <i>ca.</i> 48-hr old).	<p>Mysids were fed <i>ad libitum</i> at least two times daily with brine shrimp nauplii (<i>Artemia</i> sp., 24-48 hours old), and <i>ad libitum</i> once daily with saltwater rotifers.</p> <p>The food stock was enriched the day of use with a mixture of Salt Creek HUFA Enrich, AlgaMac-3050, and AlgaMac-Enhance (all commercially-available). The enrichment mixture was prepared by diluting 1 mL of Salt Creek HUFA Enrich and 1/8 teaspoon of an approximate 40:60 AlgaMac-3050:AlgaMac Enhance mixture in a household blender with 200 mL saltwater for 1 minute. The enrichment mixture was added to the food stock at the rate of 50 mL/L.</p>

Guideline Criteria	Reported Information
<b>Controls:</b> Negative control and carrier control (when applicable) are required.	Appropriate control groups were included.

Comments: Two retention baskets, one containing mysids for survival and reproduction observations ( $n = 45$  per level) and the other for growth observations ( $n = 45$  per level), were maintained in each replicate chamber at study initiation. Adult mysids from the reproduction retention basket were paired at the time of sexual discernment into brood cups. If needed, adults from the growth basket were used to complete the pairings. After pairing, the body lengths of all surviving mysids from the growth retention chamber were determined.

The F<sub>1</sub>-generation mysids were terminated when they reached 10 days old, which was the maximum achievable age at study termination (Day 31).

The in-life phase of the definitive test was conducted from April 16 to May 17, 2013.

#### B. Physical System:

Guideline Criteria	Reported Information
<b>Test Item:</b>	Identity: BAS 500 F Synonym(s): pyraclostrobin IUPAC: methyl 2-[1-(4-chlorophenyl)-pyrazol-3-yloxyethyl]-N-methoxy-carbanilate CAS: methyl <i>N</i> -[2-[[[1-(4-chlorophenyl)-1 <i>H</i> -pyrazol-3-yl]oxy]methyl]phenyl]- <i>N</i> -methoxycarbamate Description: tan solidified melt Batch No.: COD-001236 CAS No.: 175013-18-0 Purity: 99.02% Storage: room temperature

Guideline Criteria	Reported Information
<p><b>Test Water:</b></p> <p>1) May be natural or artificial seawater</p> <p>2) Natural seawater should be filtered (&gt;20 µm)</p> <p>3) Artificial seawater should be prepared with deionized (conductivity &lt;0.1 mS/M at 12°C) or glass-distilled water. When deionized water is prepared from a natural water source, conductivity and TOC (or COD) should be measured in each batch.</p>	<p>Artificial seawater was prepared at a salinity of <math>20 \pm 2\%</math> by adding a commercial sea salt mix (Crystal Sea Marine Mix; Marine Enterprises International, Inc., Baltimore, MD) to laboratory freshwater. The laboratory freshwater consisted of well water blended with well water that had been de-mineralized by reverse osmosis to yield water with a total hardness of 130 to 160 mg CaCO<sub>3</sub>/L.</p> <p>The dilution water was heated and aerated prior to use, and as the dilution water entered the diluter system, it passed through a particulate filter and a UV-sterilizer.</p>
<p><b>Salinity:</b>  <math>20 \pm 3\%</math> (parts per thousand).        Should be measured weekly in each chamber.</p>	<p>18.2 to 20.3%        Measured daily in all replicate chambers.</p>
<p><b>pH:</b>        Should be measured weekly in each chamber.</p>	<p>7.3 to 8.1        Measured at least weekly in all replicate chambers.</p>
<p><b>Dissolved oxygen:</b>        Should remain between 60 and 105% saturation.        Should be measured weekly in each chamber.</p>	<p>4.1 to 7.3 mg/L (57 to 101% saturation)        Measured at least weekly in all replicate chambers.</p>
<p><b>Test Temperature:</b>  <math>25 \pm 2^\circ\text{C}</math>        Should be measured weekly in each chamber.</p>	<p>24.1 to 25.0°C        Measured at least weekly in all replicate chambers, and continuously in a centrally-located test chamber.</p>

Guideline Criteria	Reported Information
<p><b>Photoperiod:</b> 14 hr light/10 hr dark with 15- to 30-minute transition periods</p>	<p>14 hr light/10 hr dark, with 30-minute low-light transition periods.</p> <p>Light intensity was measured at the level of the test solution on Day 27 and ranged from 315 to 390 lux.</p>
<p><b>Dosing Apparatus:</b></p> <ol style="list-style-type: none"> <li>1) Intermittent flow proportional diluters or continuous flow serial diluters should be used.</li> <li>2) A minimum of 5 toxicant concentrations</li> <li>3) A dilution factor not greater than 0.5 and controls should be used.</li> </ol>	<ol style="list-style-type: none"> <li>1) Intermittent-flow proportional diluter.</li> <li>2) five toxicant concentrations</li> <li>3) A dilution factor of 0.5 and appropriate controls were used.</li> </ol>
<p><b>Flow Rate:</b></p> <ol style="list-style-type: none"> <li>1) Flow rates should provide <math>\geq 5</math> volume additions per 24 hr.</li> <li>2) Flow splitting accuracy must be within 10%.</li> <li>3) Meter systems calibrated before study and general operation checked twice daily during test period.</li> </ol>	<ol style="list-style-type: none"> <li>1) <i>Ca.</i> 5.3 turnovers/chamber/day through Day 5; increased to <i>ca.</i> 7.5 turnovers/-chamber/day on Day 6 to maintain DO levels.</li> <li>2) Flow splitting accuracy <math>\pm 10\%</math></li> <li>3) Flow of dilution water and proper operation of the diluter were verified twice daily.</li> </ol>

Guideline Criteria	Reported Information
<p><b>Test Vessels:</b></p> <p>1) Materials and equipment that minimize sorption.</p> <p>2) Should be loosely covered.</p>	<p>Test chambers were all-glass aquaria measuring 19 cm (W) x 76 cm (L) x 26 cm (H). Each chamber was separated with a glass pane, which effectively partitioned the test chamber into two identical replicate chambers (38-cm long). The maximum depth of the chamber(s) was <i>ca.</i> 14 cm, which yielded a maximum volume of <i>ca.</i> 10 L when one side was in use and <i>ca.</i> 20 L when both sides were in use (after pairing).</p>
<p><b>Retention Chambers:</b></p> <p>Can be constructed with netting material of appropriate mesh size.</p>	<p>Retention baskets and brood cups consisted of a glass Petri dish base (<i>ca.</i> 1.5 x 15 cm and <i>ca.</i> 1.5 x 10 cm, respectively) with a Nitex (355 µm mesh) screen collar.</p>
<p><b>Aeration:</b></p> <p>Permitted if necessary to maintain DO.</p>	<p>Aeration was initiated in all test chambers on Day 17 (when DO levels dropped slightly below 60% saturation in two replicates).</p>

Comments: A detailed chemical characterization (including chlorinated hydrocarbons, elements, and organophosphates) of the dilution water was provided from December 2012 (non-GLP), approximately 4 months prior to the definitive experiment.

The total organic carbon (TOC) content of the well water used to prepare the artificial sea water should have been reported.

The diluter system was initiated on April 10, 2013, *ca.* 6 days prior to the definitive study initiation.

**Chemical System:**

Guideline Criteria	Reported Information
<p><b>Concentrations:</b> Concentration ranges should be selected to determine the concentration response curves, LC<sub>50</sub> values, and MATC.</p> <p>Toxicant level should be measured at each level at 0, 7, 14, 21, and 28 days, and should not vary more than 20% among replicate test chambers.</p>	<p>Nominal: 0 (negative and solvent controls), 0.25, 0.50, 1.0, 2.0 and 4.0 µg ai/L</p> <p>Mean-measured: &lt;0.0800 (&lt;MQL, controls), 0.198, 0.365, 0.676, 1.28 and 2.57 µg ai/L</p> <p>For each level, single replicate samples were collected from alternating replicates on Days 0, 9, 14, 21, and 31.</p> <p>Analytical variation was within acceptable limits during the 31-day study, with reviewer-calculated coefficients of variation (CV) of 6 to 16% for all levels (see copy of Excel worksheet in Appendix I).</p>
<p><b>Solvents:</b> 1) Should not exceed 0.1 ml/L in a flow-through system. 2) Following solvents are acceptable: triethylene glycol, methanol, acetone, ethanol.</p>	<p>Dimethylformamide, 25 µL/L</p>

**Comments:** A 28-day (July 3-31, 2012) flow-through range-finding study was conducted at nominal concentrations of 0 (negative control), 0 (25 µL/L DMF solvent control), 0.25, 0.50, 1.0, 2.0 and 4.0 µg ai/L. A total of 15 juvenile mysids (<24 hours old) were added to each retention chamber at test initiation, with two replicates per level (30 mysids/level). Mysids were fed brine shrimp nauplii generally three times daily. The following results were obtained in the negative control, solvent control, 0.25, 0.50, 1.0, 2.0 and 4.0 µg ai/L treatments after 28 days of exposure: survival averaged 90, 96, 97, 97, 97, 85 and 69%, respectively; total male lengths averaged 5.67, 5.68, 5.68, 5.78, 5.71, 5.70 and 5.83 mm, respectively; total female lengths averaged 5.86, 5.77, 5.74, 6.03, 5.89, 5.66 and 5.91 mm, respectively; and the number of young per female averaged 15.2, 23.4, 25.6, 33.1, 28.7, 15.8 and 0, respectively. The results of the range-finding test were used to establish test concentrations for the definitive study.

Diluter stock solutions were prepared periodically at a target nominal concentration of 0.160 g/L using dimethylformamide (DMF). Stocks were stored at room temperature shielded from light. Concentrations of BAS 500 F were determined in diluter stock samples collected on the same days as the test solutions (i.e., Days 0, 9, 14, 21, and 31); recoveries ranged from 95 to 101% of the nominal concentration.

All samples were analyzed for BAS 500 F using liquid chromatography in conjunction with UV detection (HPLC/UV) based upon methodology validated in November 2012. Recoveries of BAS 500 F from fortified saltwater samples during the method validation ranged from 100 to 108% of nominal at 0.148 µg ai/L (low spike level) and from 73 to 76% of nominal at 5.00 µg ai/L (high spike level). QC samples were also prepared at 0.148 (low) and 5.00 (high) µg ai/L and analyzed concurrently with each sample set. Recoveries from QC samples ranged from 75 to 114% of nominal (excludes one outlier of 218% at the low-spike level on Day 9).

## **11. REPORTED RESULTS:**

Guideline Criteria	Reported Information
Quality assurance and GLP compliance statements were included in the report?	Yes. This study was performed according to U.S. EPA Good Laboratory Practice Standards (40 CFR, Part 160) with the following exception: the latest water characterizations performed in February 2012.
<b>Controls:</b> 1) Survival of the first-generation controls (between pairing and test termination) must not be less than 70%.  2) At least 75% of the paired 1 <sup>st</sup> generation females in the controls produced young or  3) The average number of young produced by the 1 <sup>st</sup> generation females in the control(s) was at least 3.	<u>All validity requirements were fulfilled:</u> 1) Post-pairing survival was 97 and 98% for the negative and solvent controls, respectively.  2) 90 and 95% of the paired 1 <sup>st</sup> generation negative and solvent control females produced young, respectively.  3) The mean number of offspring produced per female was 12.8 and 14.1 for the negative and solvent controls, respectively.

Guideline Criteria	Reported Information
<p><b>Data Endpoints:</b></p> <p>1) The number of dead adult mysids on Days 7, 14, 21, and 28. Concentration-response curves, LC<sub>50</sub> values, and associated 95% C.I. for each interval.</p> <p>2) The number of male and female mysids at the time of sexual discernment (usu. 10 to 12 days).</p> <p>3) Body length of male and female mysids at the time of sexual discernment and again on Day 28.</p> <p>4) Cumulative young per female.</p> <p>5) If available, mortality, number of each sex, and body lengths of each sex should be recorded for the offspring.</p> <p>6) Any abnormal behavior or appearance</p>	<p><b>Endpoints evaluated in this study included:</b></p> <p>1) Survival of adult mysids pre-pairing on Days 7 and 13, and post-pairing on Days 14, 21 and 31.</p> <p>2) The number of male and female mysids at the time of sexual discernment.</p> <p>3) Body lengths (gender-specific) on Days 14 and 31 and dry weights (gender-specific on Day 31).</p> <p>4) Time to first brood release and number of young per female.</p> <p>5) Offspring survival after 4, 7 and 10 days, and offspring body length (gender-specific) after 10 days.</p> <p>6) Any abnormal behavior or appearance.</p>
<b>Raw data included?</b>	Yes

### Toxicity Observations:

#### Adult (F<sub>0</sub>)

Survival after 7 days averaged 100 and 91% for the negative and solvent control levels, respectively, compared to 99, 100, 98, 98 and 97% for the mean-measured 0.198, 0.365, 0.676, 1.28 and 2.57 µg ai/L levels, respectively. The difference was statistically-significant compared to the negative control ( $p<0.05$ ; Williams' test) at the 2.57 µg ai/L treatment level, but was not considered to be biologically-meaningful. Survival after 13 Days averaged 98 and 88% for the negative and solvent control levels, respectively, and ranged from 92 to 99% for all treatment levels, with no statistically-significant differences indicated. The 7- and 13-day LC<sub>50</sub> were >2.57 µg ai/L, and the NOAEC and LOAEC for F<sub>0</sub> mysid survival on Days 7 and 13 were 2.57 and >2.57 µg ai/L, respectively.

No treatment-related effect on survival post-pairing was observed. On Day 31, survival averaged 97 and 98% for the negative and solvent control levels, respectively, and ranged from 90 to 100% for all treatment levels, with no statistically-significant differences indicated. The 14-, 21- and 31-day LC<sub>50</sub> were >2.57 µg ai/L, and the NOAEC and LOAEC for F<sub>0</sub> mysid survival on Days 14, 21, and 31 were 2.57 and >2.57 µg ai/L, respectively.

Toxicant Conc. ( $\mu\text{g ai/L}$ )		Survival (%) <sup>(a)</sup>				
		Pre-pairing		Post-pairing		
Nom.	Mean-Meas.	Day 7	Day 13	Day 14	Day 21	Day 31
Ctrl	<MQL <sup>(b)</sup>	100	98	100	98	97
Sol. Ctrl	<MQL	91	88	100	100	98
0.25	0.198	99	99	100	100	100
0.50	0.365	100	97	100	100	93
1.0	0.676	98	98	98	98	93
2.0	1.28	98	93	98	98	90
4.0	2.57	97*	92	100	100	100

<sup>(a)</sup> Survival for Days 7 and 13 was based upon the total number of mysids at test initiation, and survival thereafter included the total number of mysids upon completion of pairing. In all cases, mysids that were either injured during the study or had become impinged and died were excluded as these deaths were not considered to be treatment-related.

<sup>(b)</sup> MQL – 0.0800  $\mu\text{g ai/L}$ .

\* Statistically-significant compared to the negative control at  $p<0.05$ .

After 14 Days, male body lengths averaged 5.10 mm in the negative control, 5.08 mm in the solvent control, and 5.01, 4.91, 5.02, 5.06 and 4.91 mm in the mean-measured 0.198, 0.365, 0.676, 1.28 and 2.57  $\mu\text{g ai/L}$  treatment levels, respectively. The difference was statistically-significant compared to the negative control ( $p<0.05$ ; Williams' test) at the 2.57  $\mu\text{g ai/L}$  level. The subsequent NOAEC and LOAEC for 14-day male length were 1.28 and 2.57  $\mu\text{g ai/L}$ , respectively.

After 14 days, female body lengths averaged 5.15 mm in the negative control, 5.02 mm in the solvent control, and 5.09, 4.98, 5.20, 5.12 and 4.84 mm in the mean-measured 0.198, 0.365, 0.676, 1.28 and 2.57  $\mu\text{g ai/L}$  treatment levels, respectively. The difference was statistically-significant compared to the negative control ( $p<0.05$ ; Williams' test) at the 2.57  $\mu\text{g ai/L}$  level. The subsequent NOAEC and LOAEC for 14-day female length were 1.28 and 2.57  $\mu\text{g ai/L}$ , respectively.

After 31 days, male body lengths averaged 6.11 mm in the negative control, 6.14 mm in the solvent control, and 6.08, 6.19, 5.95, 6.01 and 5.83 mm in the mean-measured 0.198, 0.365, 0.676, 1.28 and 2.57  $\mu\text{g ai/L}$  treatment levels, respectively. The difference was statistically-significant compared to the negative control ( $p<0.05$ ; Williams' test) at the 2.57  $\mu\text{g ai/L}$  level. The subsequent NOAEC and LOAEC for 31-day male length were 1.28 and 2.57  $\mu\text{g ai/L}$ , respectively.

DP Barcode: 420034

MRID No.: 49302901

Toxicant Conc. ( $\mu\text{g ai/L}$ )		Body Length (mm $\pm$ SD)				Dry Weight (mg $\pm$ SD)	
		Day 14		Day 31			
Nom.	Mean-Meas.	$\male$	$\female$	$\male$	$\female$	$\male$	$\female$
Ctrl	<MQL <sup>(a)</sup>	5.10 $\pm$ 0.107	5.15 $\pm$ 0.128	6.11 $\pm$ 0.122	6.23 $\pm$ 0.0515	1.14 $\pm$ 0.121	1.51 $\pm$ 0.141
Sol. Ctrl	<MQL	5.08 $\pm$ 0.119	5.02 $\pm$ 0.0737	6.14 $\pm$ 0.0709	6.32 $\pm$ 0.150	1.07 $\pm$ 0.0200	1.44 $\pm$ 0.0336
0.25	0.198	5.01 $\pm$ 0.0663	5.09 $\pm$ 0.0813	6.08 $\pm$ 0.0842	6.44 $\pm$ 0.0565	1.07 $\pm$ 0.0900	1.39 $\pm$ 0.108
0.50	0.365	4.91 $\pm$ 0.0932	4.98 $\pm$ 0.120	6.19 $\pm$ 0.114	6.45 $\pm$ 0.118	1.12 $\pm$ 0.0402	1.46 $\pm$ 0.110
1.0	0.676	5.02 $\pm$ 0.186	5.20 $\pm$ 0.196	5.95 $\pm$ 0.132	6.08 $\pm$ 0.384	0.989 $\pm$ 0.0939*	1.30 $\pm$ 0.283
2.0	1.28	5.06 $\pm$ 0.0764	5.12 $\pm$ 0.0130	6.01 $\pm$ 0.206	6.26 $\pm$ 0.118	0.972 $\pm$ 0.0812*	1.37 $\pm$ 0.146
4.0	2.57	4.91 $\pm$ 0.0198*	4.84 $\pm$ 0.159*	5.83 $\pm$ 0.193*	5.98 $\pm$ 0.149	0.937 $\pm$ 0.0982*	1.01 $\pm$ 0.109*

<sup>(a)</sup> MQL – 0.0800  $\mu\text{g ai/L}$ .

\* Statistically-significant compared to the negative control at p&lt;0.05.

After 31 Days, female body lengths averaged 6.23 mm in the negative control, 6.32 mm in the solvent control, and ranged from 5.98 to 6.45 mm in all treatment levels, with no statistically-significant differences from the negative control indicated at any level. The NOAEC and LOAEC for 31-day female length were 2.57 and >2.57 µg ai/L, respectively.

Terminal dry weight of male mysids was the most sensitive endpoint. After 31 days, male dry weights averaged 1.14, 1.07, 1.07, 1.12, 0.989, 0.972 and 0.937 mg for the negative control, solvent control, and mean-measured 0.198, 0.365, 0.676, 1.28 and 2.57 µg ai/L treatment levels, respectively. Differences were statistically-significant compared to the negative control at the ≥0.676 µg ai/L levels (p<0.05; Williams' test). The NOAEC, LOAEC, and MATC for 31-day male dry weight were 0.365, 0.676, and 0.497 µg ai/L, respectively.

After 31 days, female dry weights averaged 1.51 and 1.44 mg for the negative control and solvent control levels, respectively, and 1.39, 1.46, 1.30, 1.37 and 1.01 mg for the mean-measured 0.198, 0.365, 0.676, 1.28 and 2.57 µg ai/L treatment levels, respectively. The difference was statistically-significant compared to the negative control (p<0.05; Williams' test) at the 2.57 µg ai/L level. The subsequent NOAEC and LOAEC for 31-day female dry weight were 1.28 and 2.57 µg ai/L, respectively.

Toxicant Conc. (µg ai/L)		Mean Time to First Brood Release (Days ± SD)	Mean Young per Female (No.± SD)
Nom.	Mean-Meas.		
Ctrl	<MQL <sup>(a)</sup>	17.9 ± 2.15	12.8 ± 4.33
Sol. Ctrl	<MQL	18.2 ± 1.10	14.1 ± 7.64
0.25	0.198	17.7 ± 0.850 <sup>(b)</sup>	3.19 ± 0.577 <sup>(b)</sup>
0.50	0.365	18.5 ± 3.32	11.3 ± 0.247
1.0	0.676	19.0 ± 3.37	14.6 ± 11.5
2.0	1.28	21.8 ± 4.4	8.00 ± 6.61
4.0	2.57	17.0 (N/A)	0.191 ± 0.330*

<sup>(a)</sup> MQL – 0.0800 µg ai/L.

<sup>(b)</sup> This level was excluded from statistically analysis for reproduction endpoints due to low reproductive output from adult female mysids in this treatment which did not appear to reflect a treatment-related effect.

\* Statistically-significant compared to the negative control at p<0.05.

The mean time to first brood release was 17.9 days for the negative control, 18.2 days for the solvent control, and ranged from 17.0 to 21.8 days for all treatment levels, with no statistically-

significant differences from the negative control indicated at any level. The 0.198- $\mu\text{g ai/L}$  treatment was excluded from statistical analyses for reproduction endpoints because of low reproductive output from the female mysids which did not appear to reflect a treatment-related effect. The NOAEC and LOAEC for time to first brood release were 2.57 and  $>2.57 \mu\text{g ai/L}$ , respectively.

The mean number of total young produced per female during the 31-day exposure was 12.8 for the negative control, 14.1 for the solvent control, and 3.19, 11.3, 14.6, 8.00 and 0.191 for the mean-measured 0.198, 0.365, 0.676, 1.28 and 2.57  $\mu\text{g ai/L}$  levels, respectively. The difference was statistically-significant at the 2.57  $\mu\text{g ai/L}$  level compared to the negative control ( $p<0.05$ ; Williams' test). The 0.198- $\mu\text{g ai/L}$  treatment was excluded from statistical analyses for reproduction endpoints because of low reproductive output from the female mysids which did not appear to reflect a treatment-related effect. The NOAEC and LOAEC for mean young per female were 1.28 and 2.57  $\mu\text{g ai/L}$ , respectively.

### Offspring (F<sub>1</sub>)

No treatment-related effects on offspring survival or growth were indicated following a 10-day observation period. Survival averaged 100 and 93% in the negative and solvent control levels, respectively, and ranged from 88 to 100% in all treatment levels, with no statistically-significant differences from the negative control indicated. Similarly, the body lengths of male mysids after 10 days averaged 4.17 and 4.41 mm for the negative and solvent control levels, respectively, and ranged from 4.29 to 4.48 mm for all treatment levels, and the body lengths of female mysids averaged 4.18 and 4.57 mm for the negative and solvent control levels, respectively, and ranged from 4.34 to 4.69 mm for all treatment levels; for both male and female body lengths, no statistically-significant differences from the negative control were indicated. The NOAEC and LOAEC for offspring survival (through 10 days) and male and female length were 2.57 and  $>2.57 \mu\text{g ai/L}$ , respectively. The 4- through 10-day LC<sub>50</sub> was  $>2.57 \mu\text{g ai/L}$ .

Toxicant Conc. ( $\mu\text{g ai/L}$ )		Survival (%), Day 10	Body Length (mm $\pm$ SD), Day 10	
Nom.	Mean-Meas.		$\text{\textcircled{M}}$	$\text{\textcircled{F}}$
Ctrl	<MQL <sup>(a)</sup>	100	$4.17 \pm 0.137$	$4.18 \pm 0.0566$
Sol. Ctrl	<MQL	93	$4.41 \pm 0.0782$	$4.57 \pm 0.206$
0.25	0.198	100	$4.43 \pm 0.0382$	$4.68 \pm 0.0487$
0.50	0.365	98	$4.48 \pm 0.154$	$4.69 \pm 0.194$
1.0	0.676	96	$4.39 \pm 0.0531$	$4.42 \pm 0.174$
2.0	1.28	88	$4.30 \pm 0.247$	$4.53 \pm 0.209$
4.0	2.57	100	4.29 (N/A)	4.34 (N/A)

<sup>(a)</sup> MQL – 0.0800  $\mu\text{g ai/L}$ .

### **Statistical Results:**

**Statistical Method:** The following endpoints were statistically assessed:  $F_0$  survival prior to pairing on Days 7 and 13;  $F_0$  survival following pairing on Days 14, 21 and 31;  $F_0$  total body lengths (gender-specific) on Days 14 and 31;  $F_0$  dry weights (gender-specific) on Day 31; the day of first brood release; the number of total offspring per female;  $F_1$  survival after 4, 7 and 10 days; and  $F_1$  body lengths (gender-specific) after 10 days. All analyses were performed using SAS statistical software (ver. 9.3). Results were reported in terms of mean-measured concentrations.

Because of low reproductive output from  $F_0$  female mysids in the 0.198  $\mu\text{g ai/L}$  treatment, which did not appear to be treatment-related, this level was excluded from statistical analyses for the reproductive endpoints (day of first brood release and number of offspring per female).

The control and solvent control data were compared by a t-test and/or Fisher-Exact Test to determine if any significant differences existed. When no significant difference was present, statistical evaluations were performed against the negative control treatment. When a significant difference was present between the control and solvent control (i.e.,  $F_1$  Day-10 male and female mysid length), statistical evaluations were performed against both the negative control and solvent control levels to compare whether results from these analyses differed. If results from these analyses were equivalent, statistical comparisons against the control treatment were reported; otherwise, results from the more conservative analysis were reported.

Data for each endpoint were tested for normality using the Shapiro-Wilk test and for homogeneity of variance using Levene's test. When the *p* values from the qualification tests were <0.01, a log transformation was used on the data. Data were then compared using a one-way analysis of variance (ANOVA) procedure and a one-tailed Dunnett's test and one-tailed Williams' test. When results from Dunnett's and Williams' tests were not equivalent, the more conservative result was reported; otherwise, results from the Williams' test were reported. NOAEC and LOAEC values were assigned based upon significance, and the MATC was calculated as the geometric mean of the NOAEC and LOAEC concentrations for the most sensitive toxicological endpoint(s).

For all applicable endpoints, the LC<sub>50</sub> values exceeded the highest treatment concentration.

Endpoints affected: F<sub>0</sub> male length at 14 and 31 days, F<sub>0</sub> female length at 14 days, F<sub>0</sub> male and female dry weight at 31 days, and total young per F<sub>0</sub> female

Most Sensitive Endpoint(s): male dry weight at 31 days

Endpoint	Method	NOAEC µg ai/L	LOAEC µg ai/L	MATC µg ai/L
F <sub>0</sub> Survival, Days 7, 13, 14, 21, 31	ANOVA/Dunnett's/Williams'	2.57	>2.57	N/A
F <sub>0</sub> Length, Day 14, male	ANOVA/Dunnett's/Williams'	1.28	2.57	1.81
F <sub>0</sub> Length, Day 14, female	ANOVA/Dunnett's/Williams'	1.28	2.57	1.81
F <sub>0</sub> Length, Day 31, male	ANOVA/Dunnett's/Williams'	1.28	2.57	1.81
F <sub>0</sub> Length, Day 31, female	ANOVA/Dunnett's/Williams'	2.57	>2.57	N/A
F <sub>0</sub> Dry Weight, Day 31, male	ANOVA/Dunnett's/Williams'	0.365	0.676	0.497
F <sub>0</sub> Dry Weight, Day 31, female	ANOVA/Dunnett's/Williams'	1.28	2.57	1.81
F <sub>0</sub> Day of First Brood Release	ANOVA/Dunnett's/Williams'	2.57	>2.57	N/A
Total Young/F <sub>0</sub> Female	ANOVA/Dunnett's/Williams'	1.28	2.57	1.81
F <sub>1</sub> Survival, days 4, 7, 10	ANOVA/Dunnett's/Williams'	2.57	>2.57	N/A
F <sub>1</sub> Total Length, day 10, male	ANOVA/Dunnett's/Williams'	2.57	>2.57	N/A
F <sub>1</sub> Total Length, day 10, female	ANOVA/Dunnett's/Williams'	2.57	>2.57	N/A

## 12. REVIEWER'S STATISTICAL RESULTS:

Endpoint	Method	NOAEC µg ai/L	LOAEC µg ai/L
F <sub>0</sub> Survival, Pre-pairing (Day 13) Post-Pairing (Day 14) Entire Study	ANOVA/Dunnett's/William's Mann-Whitney U ANOVA/Dunnett's/William's	2.57	>2.57
F <sub>0</sub> Length, Day 31, male <sup>a</sup>	ANOVA/Dunnett's	2.57	>2.57
F <sub>0</sub> Length, Day 31, female <sup>a</sup>	ANOVA/Dunnett's	2.57	>2.57
F <sub>0</sub> Dry Weight, Day 31, male	ANOVA/Williams'	0.365	0.676
F <sub>0</sub> Dry Weight, Day 31, female	ANOVA/Dunnett's/Williams'	1.28	2.57
F <sub>0</sub> Day of First Brood Release <sup>b</sup>	ANOVA/Williams'	1.28	>1.28
Total Young/F <sub>0</sub> Female <sup>c</sup>	Mann-Whitney U	<0.198	0.198
F <sub>1</sub> Survival, day 10 <sup>d</sup>	ANOVA/Dunnett's/Williams'	2.57	>2.57

<sup>a</sup> The reviewer did not analyze Day 14 (post-pairing) length data because the CETIS 850.1350 test code does not have a data entry field for mid-study length, only for first generation terminal growth endpoints.

<sup>b</sup> There was only data for one replicate in the 2.57 µg ai/L treatment level, and the lower levels exhibited a monotonically-increasing trend, so the reviewer analyzed these data using a trend test, excluding the highest treatment level.

<sup>c</sup> A significant 75% reduction was detected at the lowest treatment level, relative to the negative control. The variation among replicate response at this level was low, compared to the highest treatment levels, so the reviewer could not dismiss this response as unrelated to treatment.

<sup>d</sup> The reviewer calculated and entered data for average F<sub>1</sub> combined male and female lengths; however, the current CETIS 850.1350 test code does not have an analysis option for those data.

#### Most sensitive endpoint: total young per F<sub>0</sub> female\*

\*The reviewer maintained that the 75% reduction from the negative control in offspring production at the lowest treatment level could not be dismissed. The variability of this response among replicates increased with higher doses and was again significantly lower than the negative control at the highest treatment level ( $p<0.05$ ; Mann-Whitney U test). The study author dismissed the reduction at the lowest level because it was not dose-dependent.

Comments: The reviewer compared the negative and solvent control responses using a two-sided equal variance t-test. No significant differences between the controls were detected.

**13. REFERENCES:**

U.S. Environmental Protection Agency. 1996. Ecological Effects Test Guidelines, OPPTS 850.1350 Mysid Chronic Toxicity Test, 8 pp.

U.S. Environmental Protection Agency. 1996. Ecological Effects Test Guidelines, OPPTS 850.1000 Special Considerations for Conducting Aquatic Laboratory Studies. 11 pp.

U.S. Environmental Protection Agency. 1982. Pesticide Assessment Guidelines – Subdivision E – Hazard Evaluation: Wildlife and Aquatic Organisms, EPA 540/9-82-024, 72-4, Fish Early Life-Stages and Aquatic Invertebrate Life-Cycle Statistics, pp. 76-79.

Mount, D.I., and W.A. Brungs. 1967. A simplified dosing apparatus for fish toxicology studies. *Water Research* 1:21-29.

**APPENDIX I: COPY OF REVIEWER'S ANALYTICAL VARIATION CALCULATIONS:**

Nominal Concentration (ug ai/L)	Time (Day)	Measured Concentration (ug ai/L)
0.25	0	0.186
	9	0.247
	14	0.21
	21	0.177
	31	0.169
	<b>Mean</b>	<b>0.198</b>
	<b>SD</b>	<b>0.0315</b>
	<b>CV</b>	<b>16</b>
0.5	0	0.371
	9	0.43
	14	0.315
	21	0.33
	31	0.381
	<b>Mean</b>	<b>0.3654</b>
	<b>SD</b>	<b>0.0454</b>
	<b>CV</b>	<b>12</b>
1	0	0.674
	9	0.759
	14	0.624
	21	0.622
	31	0.702
	<b>Mean</b>	<b>0.6762</b>
	<b>SD</b>	<b>0.0574</b>
	<b>CV</b>	<b>8</b>
2	0	1.36
	9	1.39
	14	1.24
	21	1.06
	31	1.34
	<b>Mean</b>	<b>1.2780</b>
	<b>SD</b>	<b>0.1342</b>
	<b>CV</b>	<b>11</b>
4	0	2.53
	9	2.6
	14	2.55

DP Barcode: 420034

MRID No.: 49302901

21	2.38
31	2.8
<b>Mean</b>	<b>2.5720</b>
<b>SD</b>	<b>0.1516</b>
<b>CV</b>	<b>6</b>

# CETIS Analytical Report

Report Date: 20 Aug-14 09:32 (p 1 of 32)  
 Test Code: 099100 49302901 | 19-2094-0221

## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	19-2858-1562	Endpoint:	F0 Female Dry Weight	CETIS Version:	CETISv1.8.7
Analyzed:	20 Aug-14 8:25	Analysis:	Parametric-Two Sample	Official Results:	Yes
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:	
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C <> T	NA	NA	15.3%	Passes f0 female dry weight

### Equal Variance t Two-Sample Test

Control	vs	Control	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha:5\%$ )
Negative Control	Solvent Blank		0.797	2.78	0.232	4	0.4698	CDF	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha:5\%$ )
Between	0.006666667	0.006666667	1	0.636	0.4698	Non-Significant Effect
Error	0.04193333	0.01048333	4			
Total	0.0486		5			

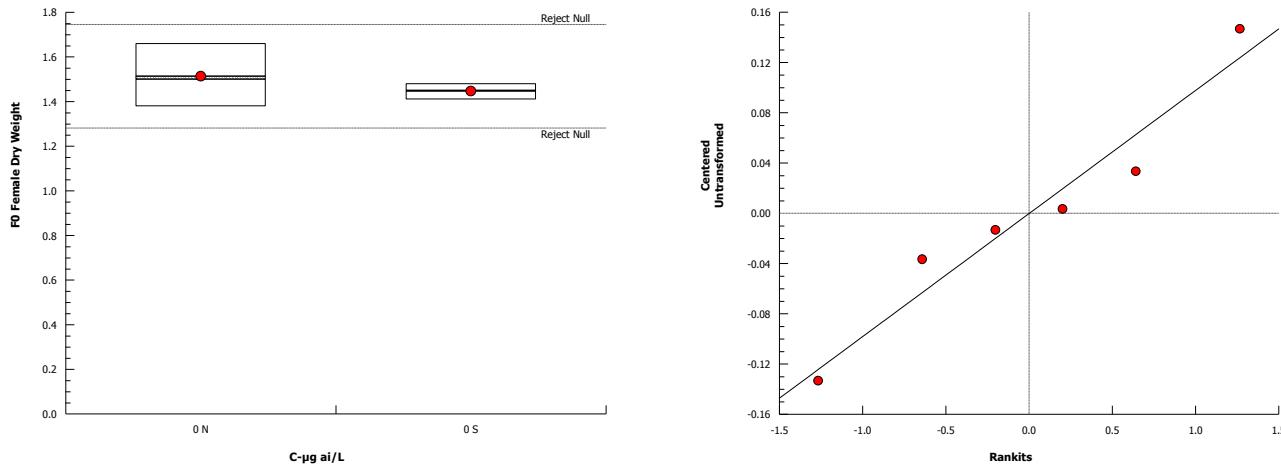
### Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha:1\%$ )
Variances	Variance Ratio F	16	199	0.1176	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.965	0.43	0.8568	Normal Distribution

### F0 Female Dry Weight Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Solvent Blank	3	1.45	1.36	1.53	1.45	1.41	1.48	0.0203	2.43%	0.0%
0	Negative Control	3	1.51	1.16	1.86	1.5	1.38	1.66	0.0811	9.28%	-4.61%

### Graphics



# CETIS Analytical Report

Report Date: 20 Aug-14 09:32 (p 2 of 32)  
 Test Code: 099100 49302901 | 19-2094-0221

## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	01-2636-5967	Endpoint:	F0 Female Dry Weight	CETIS Version:	CETISv1.8.7				
Analyzed:	20 Aug-14 8:29	Analysis:	Parametric-Control vs Treatments	Official Results:	Yes				
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:					
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater				
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea				
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h				
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Untransformed	NA	C > T	NA	NA	21.9%	1.28	2.57	1.814	

### Dunnett Multiple Comparison Test

Control	vs	C- $\mu$ g ai/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control		0.198	0.933	2.5	0.331	4	0.4550	CDF	Non-Significant Effect
		0.365	0.429	2.5	0.331	4	0.6790	CDF	Non-Significant Effect
		0.676	1.62	2.5	0.331	4	0.1989	CDF	Non-Significant Effect
		1.28	1.08	2.5	0.331	4	0.3896	CDF	Non-Significant Effect
		2.57*	3.8	2.5	0.331	4	0.0051	CDF	Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	0.4710149	0.09420299	5	3.6	0.0322	Significant Effect
Error	0.314326	0.02619383	12			
Total	0.7853409		17			

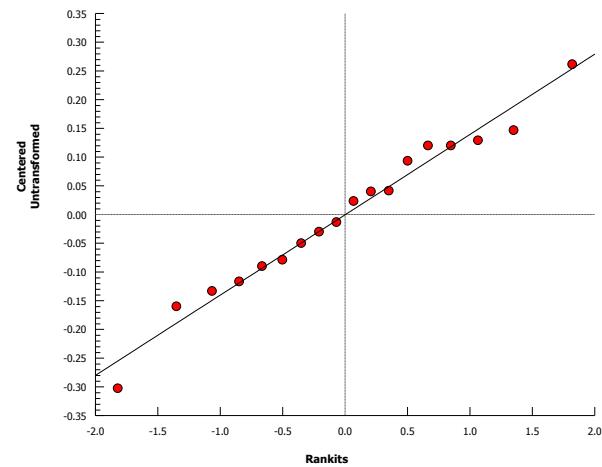
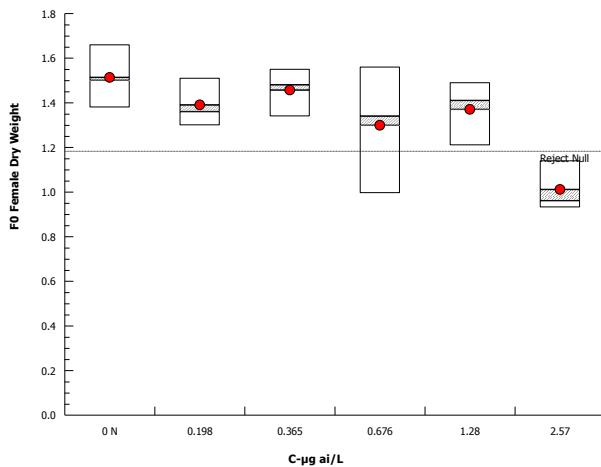
### Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Bartlett Equality of Variance	2.92	15.1	0.7116	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.983	0.855	0.9767	Normal Distribution

### F0 Female Dry Weight Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	3	1.51	1.16	1.86	1.5	1.38	1.66	0.0811	9.28%	0.0%
0.198		3	1.39	1.12	1.66	1.36	1.3	1.51	0.0624	7.78%	8.15%
0.365		3	1.46	1.19	1.72	1.48	1.34	1.55	0.0617	7.34%	3.74%
0.676		3	1.3	0.593	2	1.34	0.996	1.56	0.164	21.9%	14.2%
1.28		3	1.37	1.01	1.73	1.41	1.21	1.49	0.0833	10.5%	9.47%
2.57		3	1.01	0.731	1.29	0.961	0.932	1.14	0.065	11.1%	33.2%

### Graphics



# CETIS Analytical Report

Report Date: 20 Aug-14 09:32 (p 3 of 32)  
 Test Code: 099100 49302901 | 19-2094-0221

## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	15-3265-9837	Endpoint:	F0 Female Dry Weight	CETIS Version:	CETISv1.8.7				
Analyzed:	20 Aug-14 8:34	Analysis:	Parametric-Control vs Ord.Treatments	Official Results:	Yes				
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:					
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater				
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea				
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h				
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Untransformed	NA	C > T	NA	NA	16.8%	1.28	2.57	1.814	

### Williams Multiple Comparison Test

Control	vs	C- $\mu$ g ai/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control		0.198	0.933	1.78	0.235	4	>0.05	CDF	Non-Significant Effect
		0.365	0.681	1.87	0.248	4	>0.05	CDF	Non-Significant Effect
		0.676	1.62	1.9	0.251	4	>0.05	CDF	Non-Significant Effect
		1.28	1.35	1.92	0.253	4	>0.05	CDF	Non-Significant Effect
		2.57*	3.8	1.93	0.255	4	<0.05	CDF	Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	0.4710149	0.09420299	5	3.6	0.0322	Significant Effect
Error	0.314326	0.02619383	12			
Total	0.7853409		17			

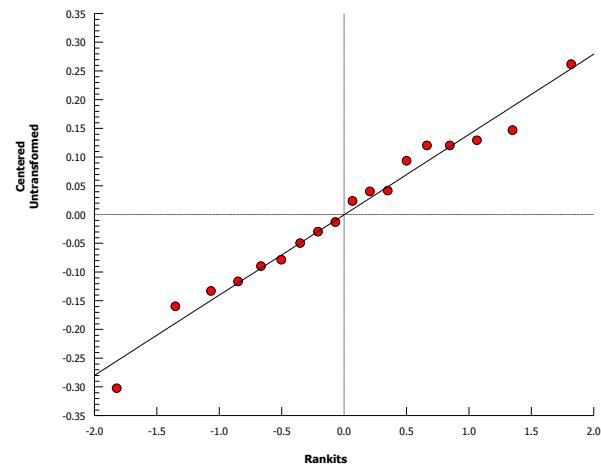
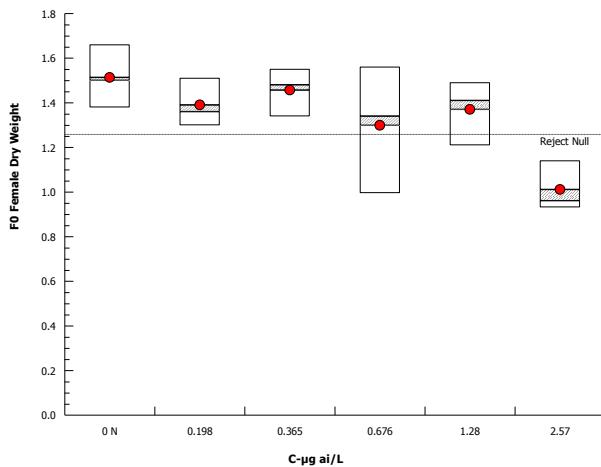
### Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Bartlett Equality of Variance	2.92	15.1	0.7116	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.983	0.855	0.9767	Normal Distribution

### F0 Female Dry Weight Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	3	1.51	1.16	1.86	1.5	1.38	1.66	0.0811	9.28%	0.0%
0.198		3	1.39	1.12	1.66	1.36	1.3	1.51	0.0624	7.78%	8.15%
0.365		3	1.46	1.19	1.72	1.48	1.34	1.55	0.0617	7.34%	3.74%
0.676		3	1.3	0.593	2	1.34	0.996	1.56	0.164	21.9%	14.2%
1.28		3	1.37	1.01	1.73	1.41	1.21	1.49	0.0833	10.5%	9.47%
2.57		3	1.01	0.731	1.29	0.961	0.932	1.14	0.065	11.1%	33.2%

### Graphics



# CETIS Analytical Report

Report Date: 20 Aug-14 09:32 (p 4 of 32)  
 Test Code: 099100 49302901 | 19-2094-0221

## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	15-1983-1860	Endpoint:	F0 Female Length	CETIS Version:	CETISv1.8.7
Analyzed:	20 Aug-14 8:25	Analysis:	Parametric-Two Sample	Official Results:	Yes
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:	
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C <> T	NA	NA	4.1%	Passes f0 female length

### Equal Variance t Two-Sample Test

Control	vs	Control	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha:5\%$ )
Negative Control	Solvent Blank		0.943	2.78	0.255	4	0.3990	CDF	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha:5\%$ )
Between	0.01126667	0.01126667	1	0.889	0.3990	Non-Significant Effect
Error	0.05066667	0.01266667	4			
Total	0.06193333		5			

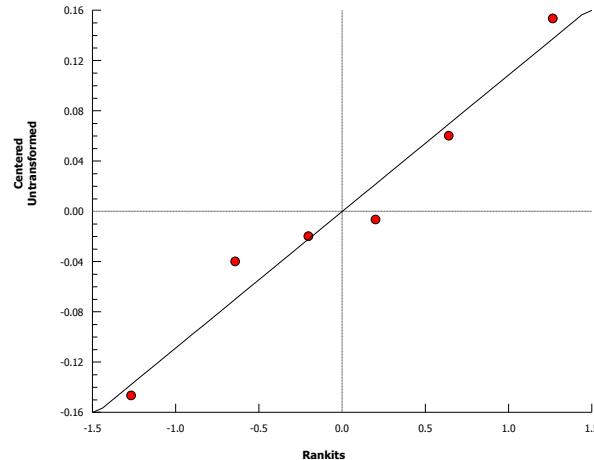
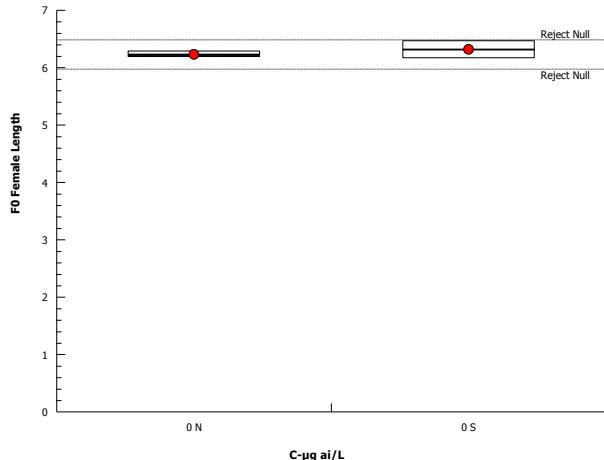
### Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha:1\%$ )
Variances	Variance Ratio F	8.05	199	0.2211	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.974	0.43	0.9177	Normal Distribution

### F0 Female Length Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Solvent Blank	3	6.32	5.94	6.69	6.31	6.17	6.47	0.0867	2.38%	0.0%
0	Negative Control	3	6.23	6.1	6.36	6.21	6.19	6.29	0.0306	0.85%	1.37%

### Graphics



## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	01-2510-9645	Endpoint:	F0 Female Length	CETIS Version:	CETISv1.8.7				
Analyzed:	20 Aug-14 8:29	Analysis:	Parametric-Control vs Treatments	Official Results:	Yes				
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:					
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater				
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea				
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h				
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Untransformed	NA	C > T	NA	NA	6.06%	2.57	>2.57	NA	

## Dunnett Multiple Comparison Test

Control	vs	C- $\mu$ g ai/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control		0.198	-1.39	2.5	0.378	4	0.9934	CDF	Non-Significant Effect
		0.365	-1.48	2.5	0.378	4	0.9948	CDF	Non-Significant Effect
		0.676	1.02	2.5	0.378	4	0.4191	CDF	Non-Significant Effect
		1.28	-0.243	2.5	0.378	4	0.8944	CDF	Non-Significant Effect
		2.57	1.66	2.5	0.378	4	0.1903	CDF	Non-Significant Effect

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	0.5417778	0.1083556	5	3.17	0.0472	Significant Effect
Error	0.4104	0.0342	12			
Total	0.9521778		17			

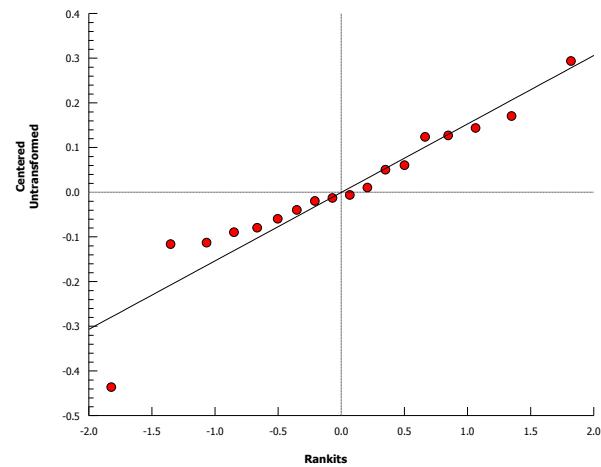
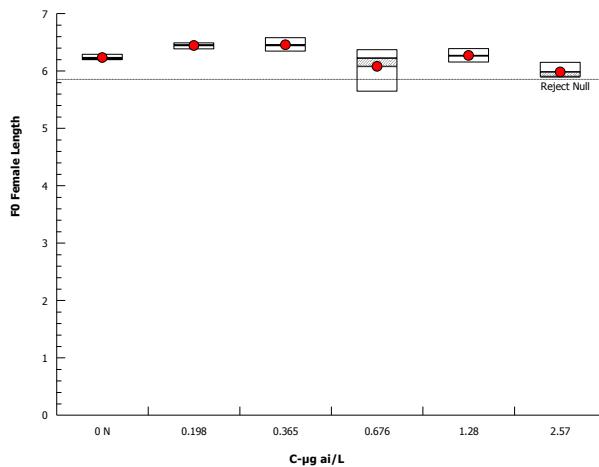
## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Bartlett Equality of Variance	9.39	15.1	0.0945	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.922	0.855	0.1392	Normal Distribution

## F0 Female Length Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	3	6.23	6.1	6.36	6.21	6.19	6.29	0.0306	0.85%	0.0%
0.198		3	6.44	6.3	6.58	6.45	6.38	6.49	0.0322	0.87%	-3.37%
0.365		3	6.45	6.15	6.75	6.44	6.34	6.58	0.0696	1.87%	-3.58%
0.676		3	6.08	5.12	7.03	6.22	5.64	6.37	0.223	6.34%	2.46%
1.28		3	6.27	5.97	6.57	6.26	6.15	6.39	0.0694	1.92%	-0.59%
2.57		3	5.98	5.61	6.35	5.9	5.89	6.15	0.085	2.46%	4.01%

## Graphics



**CETIS Analytical Report**

**Report Date:** 20 Aug-14 09:32 (p 6 of 32)  
**Test Code:** 099100 49302901 | 19-2094-0221

**OPPTS 850.1350 Chronic Invert (Mysid)****ABC Labs**

<b>Analysis ID:</b> 14-5851-3276	<b>Endpoint:</b> F0 Male Dry Weight	<b>CETIS Version:</b> CETISv1.8.7
<b>Analyzed:</b> 20 Aug-14 8:25	<b>Analysis:</b> Parametric-Two Sample	<b>Official Results:</b> Yes
<b>Batch ID:</b> 03-6598-0585	<b>Test Type:</b> Chronic Mysid (28-d)	<b>Analyst:</b>
<b>Start Date:</b> 16 Apr-13	<b>Protocol:</b> OPPTS 850.1350 Chronic Invert (Mysid Life	<b>Diluent:</b> Laboratory Seawater
<b>Ending Date:</b>	<b>Species:</b> Mysidopsis bahia	<b>Brine:</b> Crystal Sea
<b>Duration:</b> NA	<b>Source:</b> Lab In-House Culture	<b>Age:</b> <24h

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C <> T	NA	NA	17.4%	Passes f0 male dry weight

**Equal Variance t Two-Sample Test**

Control	vs	Control	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha:5\%$ )
Negative Control	Solvent Blank		1.07	2.78	0.199	4	0.3458	CDF	Non-Significant Effect

**ANOVA Table**

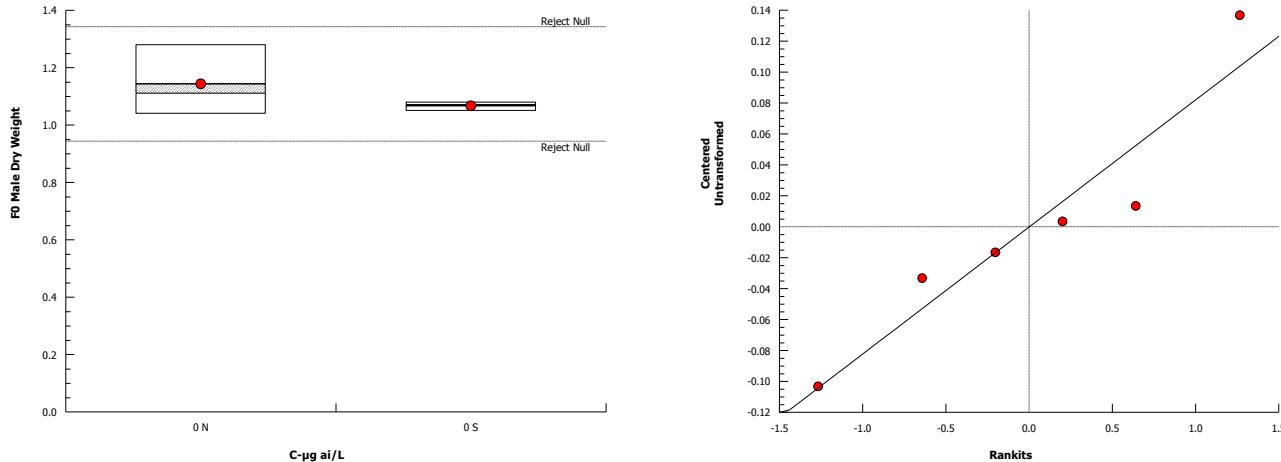
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha:5\%$ )
Between	0.008816667	0.008816667	1	1.14	0.3458	Non-Significant Effect
Error	0.030933333	0.007733333	4			
Total	0.03975		5			

**Distributional Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha:1\%$ )
Variances	Variance Ratio F	65.3	199	0.0302	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.925	0.43	0.5440	Normal Distribution

**F0 Male Dry Weight Summary**

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Solvent Blank	3	1.07	1.03	1.1	1.07	1.05	1.08	0.00882	1.43%	0.0%
0	Negative Control	3	1.14	0.837	1.45	1.11	1.04	1.28	0.0713	10.8%	-7.19%

**Graphics**

# CETIS Analytical Report

Report Date: 20 Aug-14 09:32 (p 7 of 32)  
 Test Code: 099100 49302901 | 19-2094-0221

## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	02-5175-4974	Endpoint:	F0 Male Dry Weight	CETIS Version:	CETISv1.8.7
Analyzed:	20 Aug-14 8:29	Analysis:	Parametric-Control vs Treatments	Official Results:	Yes
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:	
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD NOEL LOEL TOEL TU
Untransformed	NA	C > T	NA	NA	16.2% 1.28 2.57 1.814

### Dunnett Multiple Comparison Test

Control	vs	C- $\mu$ g ai/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control		0.198	0.992	2.5	0.185	4	0.4290	CDF	Non-Significant Effect
		0.365	0.361	2.5	0.185	4	0.7068	CDF	Non-Significant Effect
		0.676	2.13	2.5	0.185	4	0.0928	CDF	Non-Significant Effect
		1.28	2.3	2.5	0.185	4	0.0707	CDF	Non-Significant Effect
		2.57*	2.82	2.5	0.185	4	0.0289	CDF	Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	0.1072724	0.02145449	5	2.62	0.0797	Non-Significant Effect
Error	0.098284	0.008190333	12			
Total	0.2055565		17			

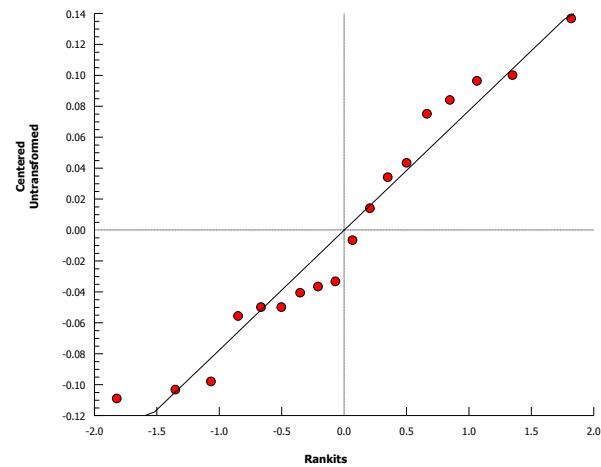
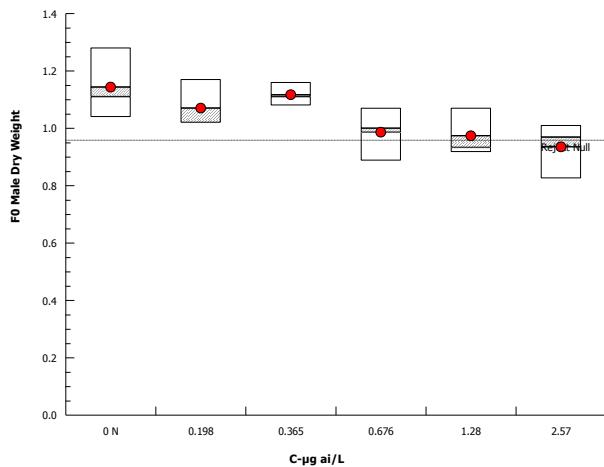
### Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Bartlett Equality of Variance	1.8	15.1	0.8759	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.942	0.855	0.3135	Normal Distribution

### F0 Male Dry Weight Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	3	1.14	0.837	1.45	1.11	1.04	1.28	0.0713	10.8%	0.0%
0.198		3	1.07	0.855	1.29	1.02	1.02	1.17	0.05	8.09%	6.41%
0.365		3	1.12	1.02	1.22	1.11	1.08	1.16	0.0233	3.62%	2.33%
0.676		3	0.986	0.758	1.21	1	0.888	1.07	0.053	9.31%	13.8%
1.28		3	0.974	0.766	1.18	0.933	0.918	1.07	0.0484	8.6%	14.8%
2.57		3	0.935	0.695	1.17	0.969	0.826	1.01	0.0558	10.3%	18.2%

### Graphics



## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	13-9859-4303	Endpoint:	F0 Male Dry Weight	CETIS Version:	CETISv1.8.7
Analyzed:	20 Aug-14 8:34	Analysis:	Parametric-Control vs Ord.Treatments	Official Results:	Yes
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:	
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD NOEL LOEL TOEL TU
Untransformed	NA	C > T	NA	NA	12.5% 0.365 0.676 0.4967

## Williams Multiple Comparison Test

Control	vs	C- $\mu$ g ai/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control		0.198	0.992	1.78	0.132	4	>0.05	CDF	Non-Significant Effect
		0.365	0.677	1.87	0.138	4	>0.05	CDF	Non-Significant Effect
		0.676*	2.13	1.9	0.141	4	<0.05	CDF	Significant Effect
		1.28*	2.3	1.92	0.142	4	<0.05	CDF	Significant Effect
		2.57*	2.82	1.93	0.142	4	<0.05	CDF	Significant Effect

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	0.1072724	0.02145449	5	2.62	0.0797	Non-Significant Effect
Error	0.098284	0.008190333	12			
Total	0.2055565		17			

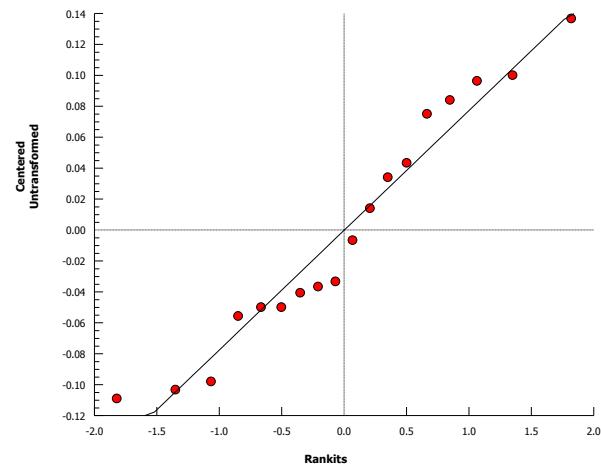
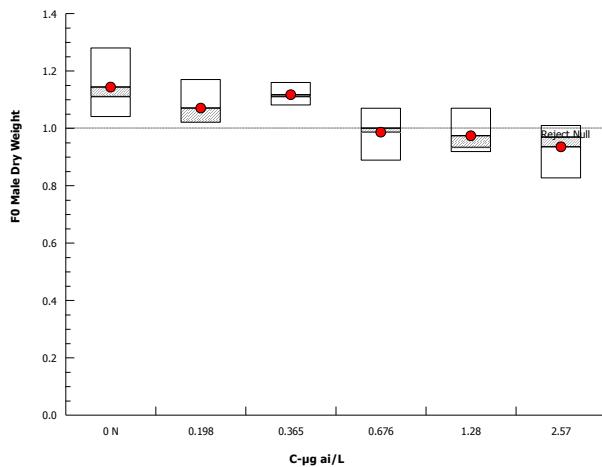
## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Bartlett Equality of Variance	1.8	15.1	0.8759	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.942	0.855	0.3135	Normal Distribution

## F0 Male Dry Weight Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	3	1.14	0.837	1.45	1.11	1.04	1.28	0.0713	10.8%	0.0%
0.198		3	1.07	0.855	1.29	1.02	1.02	1.17	0.05	8.09%	6.41%
0.365		3	1.12	1.02	1.22	1.11	1.08	1.16	0.0233	3.62%	2.33%
0.676		3	0.986	0.758	1.21	1	0.888	1.07	0.053	9.31%	13.8%
1.28		3	0.974	0.766	1.18	0.933	0.918	1.07	0.0484	8.6%	14.8%
2.57		3	0.935	0.695	1.17	0.969	0.826	1.01	0.0558	10.3%	18.2%

## Graphics



**CETIS Analytical Report**

**Report Date:** 20 Aug-14 09:32 (p 9 of 32)  
**Test Code:** 099100 49302901 | 19-2094-0221

**OPPTS 850.1350 Chronic Invert (Mysid)****ABC Labs**

<b>Analysis ID:</b> 09-7467-7417	<b>Endpoint:</b> F0 Male Length	<b>CETIS Version:</b> CETISv1.8.7				
<b>Analyzed:</b> 20 Aug-14 8:25	<b>Analysis:</b> Parametric-Two Sample	<b>Official Results:</b> Yes				
<b>Batch ID:</b> 03-6598-0585	<b>Test Type:</b> Chronic Mysid (28-d)	<b>Analyst:</b>				
<b>Start Date:</b> 16 Apr-13	<b>Protocol:</b> OPPTS 850.1350 Chronic Invert (Mysid Life	<b>Diluent:</b> Laboratory Seawater				
<b>Ending Date:</b>	<b>Species:</b> Mysidopsis bahia	<b>Brine:</b> Crystal Sea				
<b>Duration:</b> NA	<b>Source:</b> Lab In-House Culture	<b>Age:</b> <24h				
<b>Data Transform</b>	<b>Zeta</b>	<b>Alt Hyp</b>	<b>Trials</b>	<b>Seed</b>	<b>PMSD</b>	<b>Test Result</b>
Untransformed	NA	C <> T	NA	NA	3.68%	Passes f0 male length

**Equal Variance t Two-Sample Test**

<b>Control</b>	<b>vs</b>	<b>Control</b>	<b>Test Stat</b>	<b>Critical</b>	<b>MSD</b>	<b>DF</b>	<b>P-Value</b>	<b>P-Type</b>	<b>Decision(<math>\alpha</math>:5%)</b>
Negative Control	Solvent Blank		0.453	2.78	0.225	4	0.6739	CDF	Non-Significant Effect

**ANOVA Table**

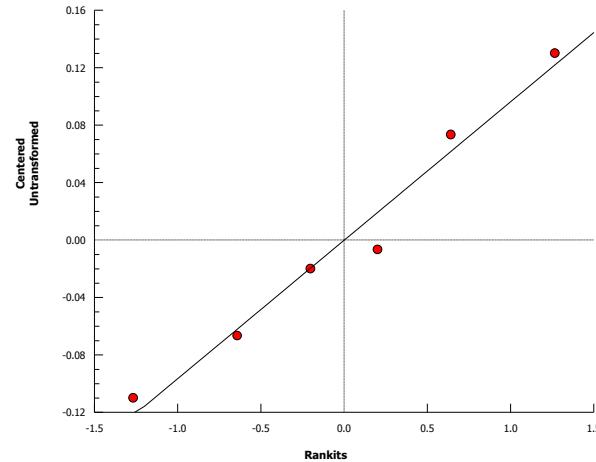
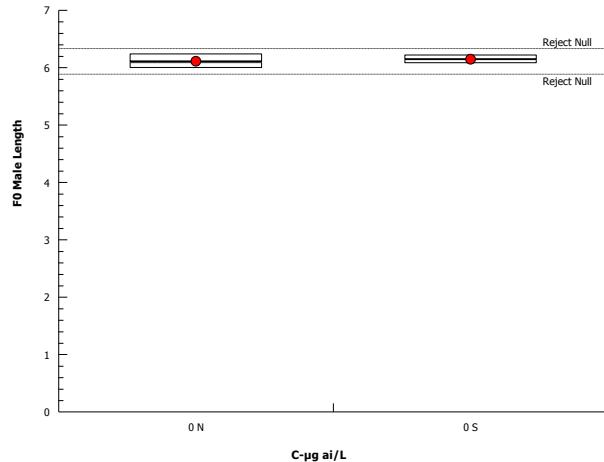
<b>Source</b>	<b>Sum Squares</b>	<b>Mean Square</b>	<b>DF</b>	<b>F Stat</b>	<b>P-Value</b>	<b>Decision(<math>\alpha</math>:5%)</b>
Between	0.002016667	0.002016667	1	0.205	0.6739	Non-Significant Effect
Error	0.03926667	0.009816667	4			
Total	0.04128334		5			

**Distributional Tests**

<b>Attribute</b>	<b>Test</b>	<b>Test Stat</b>	<b>Critical</b>	<b>P-Value</b>	<b>Decision(<math>\alpha</math>:1%)</b>
Variances	Variance Ratio F	2.98	199	0.5025	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.966	0.43	0.8666	Normal Distribution

**F0 Male Length Summary**

<b>C-<math>\mu</math>g ai/L</b>	<b>Control Type</b>	<b>Count</b>	<b>Mean</b>	<b>95% LCL</b>	<b>95% UCL</b>	<b>Median</b>	<b>Min</b>	<b>Max</b>	<b>Std Err</b>	<b>CV%</b>	<b>%Effect</b>
0	Solvent Blank	3	6.15	5.97	6.32	6.14	6.08	6.22	0.0406	1.14%	0.0%
0	Negative Control	3	6.11	5.81	6.41	6.09	6	6.24	0.07	1.98%	0.6%

**Graphics**

# CETIS Analytical Report

Report Date: 20 Aug-14 09:32 (p 10 of 32)  
 Test Code: 099100 49302901 | 19-2094-0221

## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	16-5427-0214	Endpoint:	F0 Male Length	CETIS Version:	CETISv1.8.7				
Analyzed:	20 Aug-14 8:29	Analysis:	Parametric-Control vs Treatments	Official Results:	Yes				
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:					
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater				
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea				
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h				
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Untransformed	NA	C > T	NA	NA	4.94%	2.57	>2.57	NA	

### Dunnett Multiple Comparison Test

Control	vs	C- $\mu$ g ai/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control		0.198	0.276	2.5	0.302	4	0.7400	CDF	Non-Significant Effect
		0.365	-0.718	2.5	0.302	4	0.9630	CDF	Non-Significant Effect
		0.676	1.3	2.5	0.302	4	0.3049	CDF	Non-Significant Effect
		1.28	0.856	2.5	0.302	4	0.4894	CDF	Non-Significant Effect
		2.57	2.35	2.5	0.302	4	0.0649	CDF	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	0.2523167	0.05046333	5	2.31	0.1090	Non-Significant Effect
Error	0.2621333	0.02184444	12			
Total	0.51445		17			

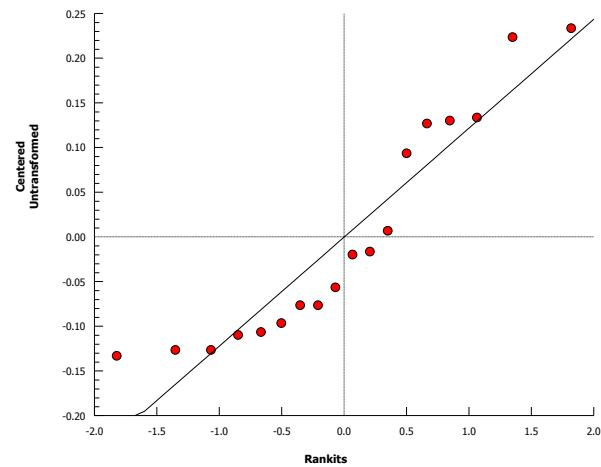
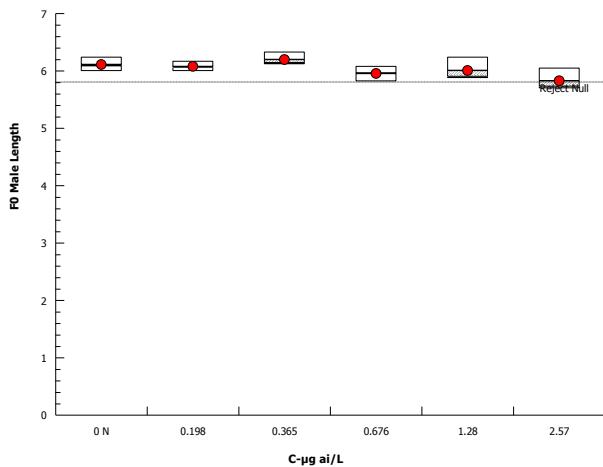
### Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Bartlett Equality of Variance	1.75	15.1	0.8830	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.873	0.855	0.0199	Normal Distribution

### F0 Male Length Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	3	6.11	5.81	6.41	6.09	6	6.24	0.07	1.98%	0.0%
0.198		3	6.08	5.86	6.29	6.06	6	6.17	0.0498	1.42%	0.55%
0.365		3	6.2	5.91	6.48	6.14	6.12	6.33	0.0669	1.87%	-1.42%
0.676		3	5.95	5.63	6.28	5.96	5.82	6.08	0.0751	2.19%	2.56%
1.28		3	6.01	5.5	6.51	5.9	5.88	6.24	0.117	3.37%	1.69%
2.57		3	5.83	5.34	6.31	5.73	5.7	6.05	0.112	3.33%	4.64%

### Graphics



# CETIS Analytical Report

Report Date: 20 Aug-14 09:32 (p 11 of 32)  
 Test Code: 099100 49302901 | 19-2094-0221

## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	12-5899-3446	Endpoint:	F0 Mortality Entire Study	CETIS Version:	CETISv1.8.7
Analyzed:	20 Aug-14 8:25	Analysis:	Parametric-Two Sample	Official Results:	Yes
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:	
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C <> T	NA	NA	4.58%	Passes f0 mortality entire study

### Equal Variance t Two-Sample Test

Control	vs	Control	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha:5\%$ )
Negative Control	Solvent Blank		0.0487	2.78	0.045	4	0.9635	CDF	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha:5\%$ )
Between	9.448224E-07	9.448224E-07	1	0.00238	0.9635	Non-Significant Effect
Error	0.001591081	0.0003977702	4			
Total	0.001592026		5			

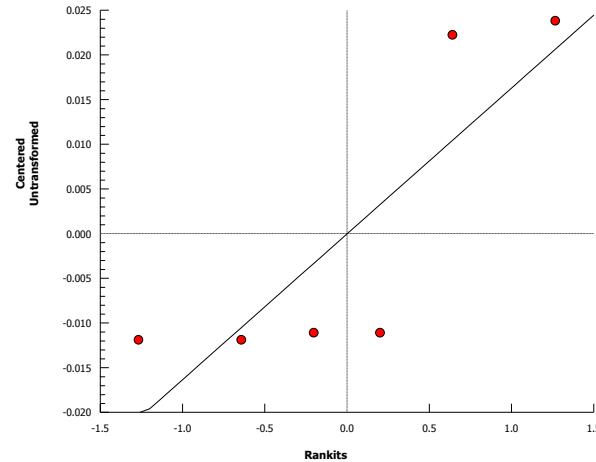
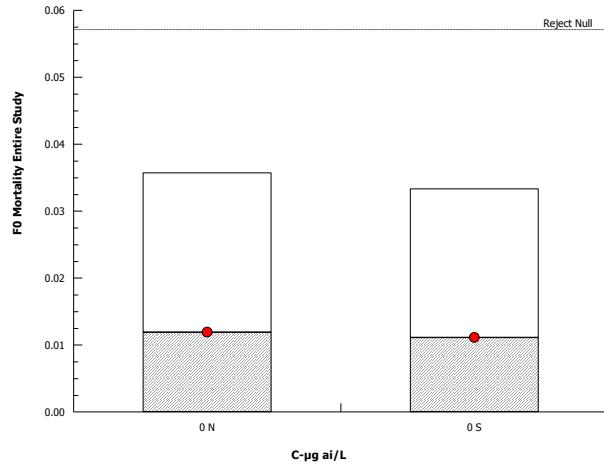
### Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha:1\%$ )
Variances	Variance Ratio F	1.15	199	0.9311	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.666	0.43	0.0026	Non-normal Distribution

### F0 Mortality Entire Study Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Solvent Blank	3	0.0111	0	0.0589	0	0	0.0333	0.0111	173.0%	0.0%
0	Negative Control	3	0.0119	0	0.0631	0	0	0.0357	0.0119	173.0%	0.08%

### Graphics



# CETIS Analytical Report

Report Date: 20 Aug-14 09:32 (p 12 of 32)  
 Test Code: 099100 49302901 | 19-2094-0221

## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	10-8104-8611	Endpoint:	F0 Mortality Entire Study	CETIS Version:	CETISv1.8.7
Analyzed:	20 Aug-14 9:24	Analysis:	Nonparametric-Two Sample	Official Results:	Yes
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:	
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD NOEL LOEL TOEL TU
Untransformed	NA	C < T	NA	NA	3.14% 2.57 >2.57 NA

### Mann-Whitney U Two-Sample Test

Control	vs	C- $\mu$ g ai/L	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control		0.198	3	NA	1	4	1.0000	Exact	Non-Significant Effect
		0.365	6	NA	1	4	0.3500	Exact	Non-Significant Effect
		0.676	6	NA	0	4	0.2000	Exact	Non-Significant Effect
		1.28	7	NA	0	4	0.1500	Exact	Non-Significant Effect
		2.57	3	NA	1	4	1.0000	Exact	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	0.00545131	0.001090262	5	3.43	0.0372	Significant Effect
Error	0.003813303	0.0003177753	12			
Total	0.009264613		17			

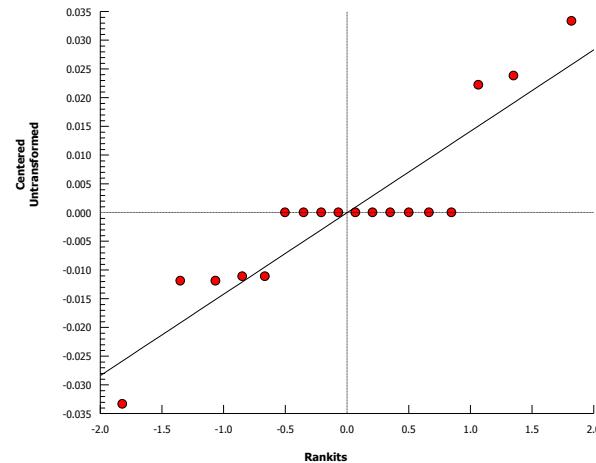
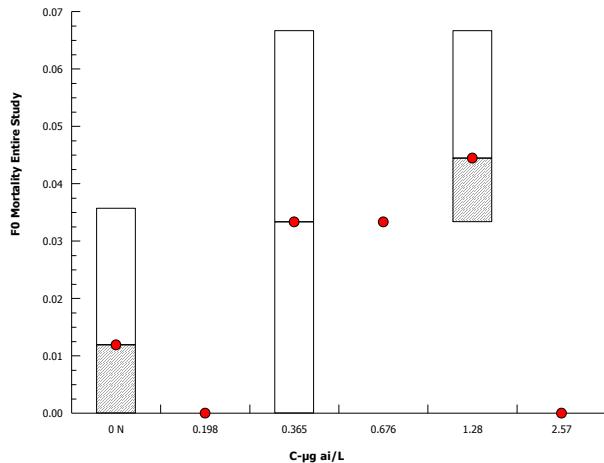
### Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Mod Levene Equality of Variance	1.89	8.75	0.2301	Equal Variances
Variances	Levene Equality of Variance	3.91	5.06	0.0245	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.849	0.855	0.0082	Non-normal Distribution

### F0 Mortality Entire Study Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	3	0.0119	0	0.0631	0	0	0.0357	0.0119	173.0%	0.0%
0.198		3	0	0	0	0	0	0	0	-1.2%	
0.365		3	0.0333	0	0.116	0.0333	0	0.0667	0.0192	100.0%	2.17%
0.676		3	0.0333	0.0333	0.0333	0.0333	0.0333	0	0	0.0%	2.17%
1.28		3	0.0444	0	0.0923	0.0333	0.0333	0.0667	0.0111	43.3%	3.29%
2.57		3	0	0	0	0	0	0	0	-1.2%	

### Graphics



# CETIS Analytical Report

Report Date: 20 Aug-14 09:32 (p 13 of 32)  
 Test Code: 099100 49302901 | 19-2094-0221

## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	00-0623-6228	Endpoint:	F0 Mortality Post Pairing	CETIS Version:	CETISv1.8.7
Analyzed:	20 Aug-14 8:25	Analysis:	Parametric-Two Sample	Official Results:	Yes
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:	
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C <> T	NA	NA	9.58%	Passes f0 mortality post pairing

### Equal Variance t Two-Sample Test

Control	vs	Control	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha:5\%$ )
Negative Control	Solvent Blank		0	2.78	0.094	4	1.0000	CDF	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha:5\%$ )
Between	0	0	1	0	1.0000	Non-Significant Effect
Error	0.006802721	0.00170068	4			
Total	0.006802721		5			

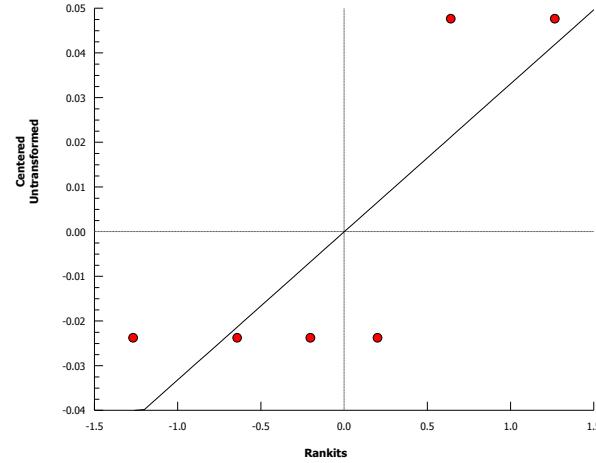
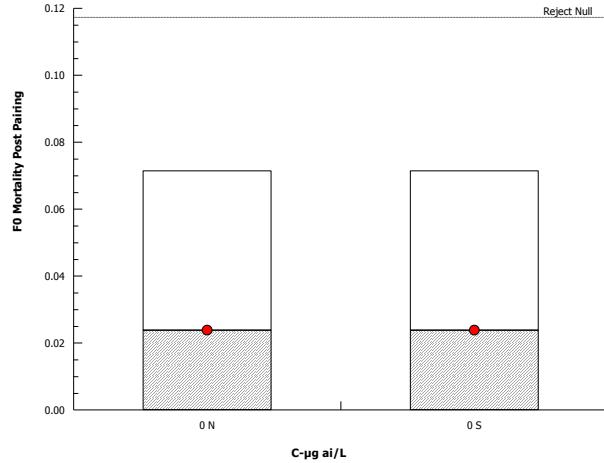
### Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha:1\%$ )
Variances	Variance Ratio F	1	199	1.0000	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.64	0.43	0.0014	Non-normal Distribution

### F0 Mortality Post Pairing Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Solvent Blank	3	0.0238	0	0.126	0	0	0.0714	0.0238	173.0%	0.0%
0	Negative Control	3	0.0238	0	0.126	0	0	0.0714	0.0238	173.0%	0.0%

### Graphics



## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	00-8020-7174	Endpoint:	F0 Mortality Post Pairing	CETIS Version:	CETISv1.8.7				
Analyzed:	20 Aug-14 9:24	Analysis:	Parametric-Control vs Treatments	Official Results:	Yes				
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:					
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater				
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea				
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h				
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Untransformed	NA	C < T	NA	NA	7.58%	2.57	>2.57	NA	

## Dunnett Multiple Comparison Test

Control	vs	C- $\mu$ g ai/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control		0.198	-0.805	2.5	0.074	4	0.9700	CDF	Non-Significant Effect
		0.365	1.5	2.5	0.074	4	0.2348	CDF	Non-Significant Effect
		0.676	1.5	2.5	0.074	4	0.2348	CDF	Non-Significant Effect
		1.28	2.42	2.5	0.074	4	0.0571	CDF	Non-Significant Effect
		2.57	-0.805	2.5	0.074	4	0.9700	CDF	Non-Significant Effect

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	0.02428615	0.004857231	5	3.7	0.0293	Significant Effect
Error	0.01573965	0.001311637	12			
Total	0.0400258		17			

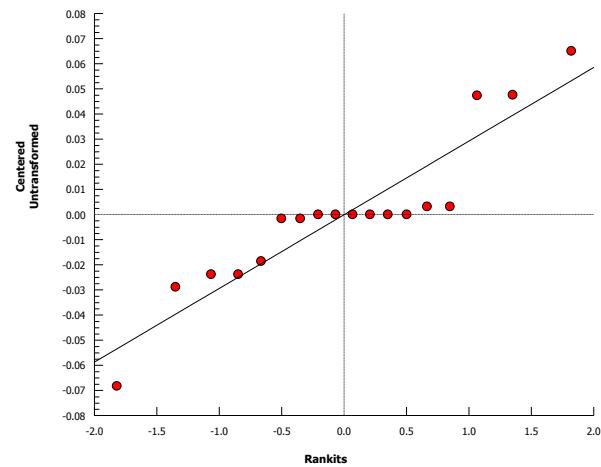
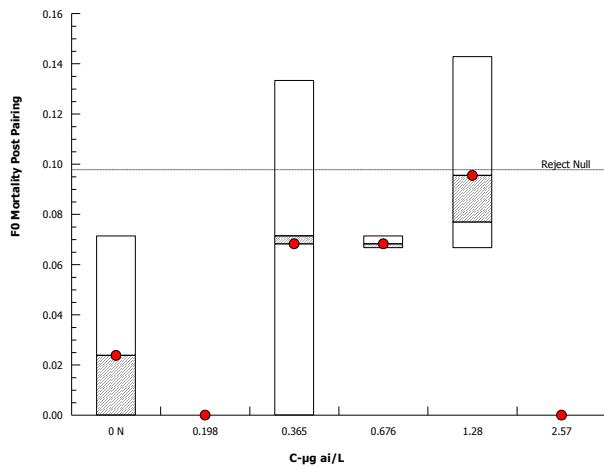
## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Mod Levene Equality of Variance	2.18	8.75	0.1853	Equal Variances
Variances	Levene Equality of Variance	4.17	5.06	0.0198	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.876	0.855	0.0221	Normal Distribution

## F0 Mortality Post Pairing Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	3	0.0238	0	0.126	0	0	0.0714	0.0238	173.0%	0.0%
0.198		3	0	0	0	0	0	0	0		-2.44%
0.365		3	0.0683	0	0.234	0.0714	0	0.133	0.0385	97.8%	4.55%
0.676		3	0.0683	0.0614	0.0751	0.0667	0.0667	0.0714	0.00159	4.03%	4.55%
1.28		3	0.0955	0	0.198	0.0769	0.0667	0.143	0.0239	43.3%	7.34%
2.57		3	0	0	0	0	0	0	0		-2.44%

## Graphics



# CETIS Analytical Report

Report Date: 20 Aug-14 09:32 (p 15 of 32)  
 Test Code: 099100 49302901 | 19-2094-0221

## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	19-1774-3589	Endpoint:	F0 Mortality Pre Pairing	CETIS Version:	CETISv1.8.7	
Analyzed:	20 Aug-14 8:25	Analysis:	Parametric-Two Sample	Official Results:	Yes	
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:		
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater	
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea	
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h	
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C <> T	NA	NA	20.4%	Passes f0 mortality pre pairing

### Equal Variance t Two-Sample Test

Control	vs	Control	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha:5\%$ )
Negative Control	Solvent Blank		1.37	2.78	0.199	4	0.2416	CDF	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha:5\%$ )
Between	0.01452759	0.01452759	1	1.89	0.2416	Non-Significant Effect
Error	0.03080877	0.007702192	4			
Total	0.04533636		5			

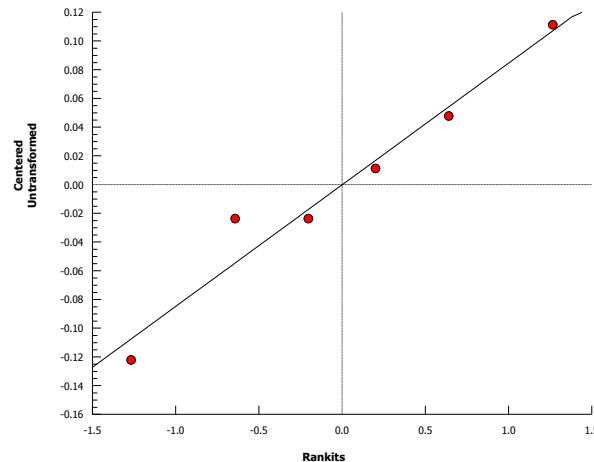
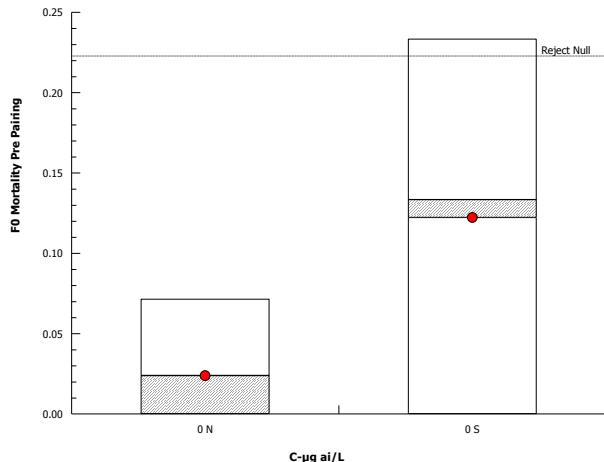
### Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha:1\%$ )
Variances	Variance Ratio F	8.06	199	0.2208	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.973	0.43	0.9134	Normal Distribution

### F0 Mortality Pre Pairing Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Solvent Blank	3	0.122	0	0.413	0.133	0	0.233	0.0676	95.8%	0.0%
0	Negative Control	3	0.0238	0	0.126	0	0	0.0714	0.0238	173.0%	-11.2%

### Graphics



## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	16-8137-5211	Endpoint:	F0 Mortality Pre Pairing	CETIS Version:	CETISv1.8.7
Analyzed:	20 Aug-14 9:24	Analysis:	Parametric-Control vs Treatments	Official Results:	Yes
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:	
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD NOEL LOEL TOEL TU
Untransformed	NA	C < T	NA	NA	9.24% 2.57 >2.57 NA

## Dunnett Multiple Comparison Test

Control	vs	C- $\mu$ g ai/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control		0.198	-0.352	2.5	0.090	4	0.9156	CDF	Non-Significant Effect
		0.365	0.254	2.5	0.090	4	0.7483	CDF	Non-Significant Effect
		0.676	-0.044	2.5	0.090	4	0.8459	CDF	Non-Significant Effect
		1.28	1.19	2.5	0.090	4	0.3471	CDF	Non-Significant Effect
		2.57	1.5	2.5	0.090	4	0.2368	CDF	Non-Significant Effect

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	0.01078633	0.002157266	5	1.11	0.4068	Non-Significant Effect
Error	0.02340213	0.001950178	12			
Total	0.03418846		17			

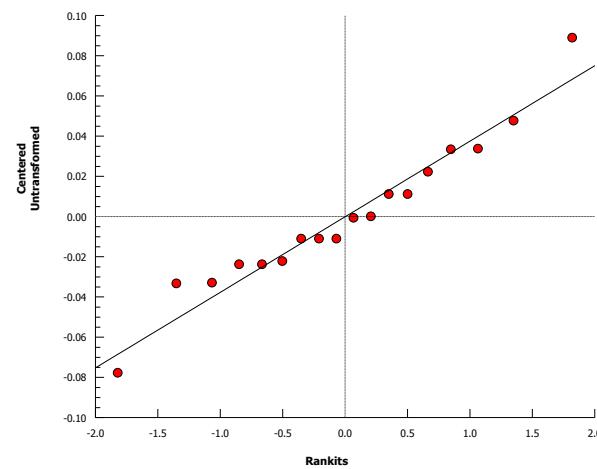
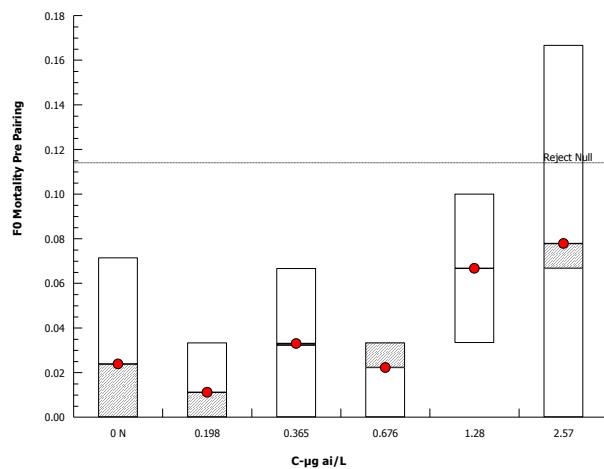
## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Bartlett Equality of Variance	5.53	15.1	0.3550	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.964	0.855	0.6892	Normal Distribution

## F0 Mortality Pre Pairing Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	3	0.0238	0	0.126	0	0	0.0714	0.0238	173.0%	0.0%
0.198		3	0.0111	0	0.0589	0	0	0.0333	0.0111	173.0%	-1.3%
0.365		3	0.033	0	0.116	0.0323	0	0.0667	0.0192	101.0%	0.94%
0.676		3	0.0222	0	0.07	0.0333	0	0.0333	0.0111	86.6%	-0.16%
1.28		3	0.0667	0	0.149	0.0667	0.0333	0.1	0.0192	50.0%	4.39%
2.57		3	0.0778	0	0.286	0.0667	0	0.167	0.0484	108.0%	5.53%

## Graphics



# CETIS Analytical Report

Report Date: 20 Aug-14 09:32 (p 17 of 32)  
 Test Code: 099100 49302901 | 19-2094-0221

## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	17-3088-1174	Endpoint:	F0 Survival Entire Study	CETIS Version:	CETISv1.8.7
Analyzed:	20 Aug-14 9:20	Analysis:	Parametric-Two Sample	Official Results:	Yes
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:	
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	27.3%	Passes f0 survival entire study

### Equal Variance t Two-Sample Test

Control	vs	Control	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha:5\%$ )
Negative Control	Solvent Blank		0.575	2.78	0.115	4	0.5959	CDF	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha:5\%$ )
Between	0.0008503401	0.0008503401	1	0.331	0.5959	Non-Significant Effect
Error	0.01027967	0.002569917	4			
Total	0.011113001		5			

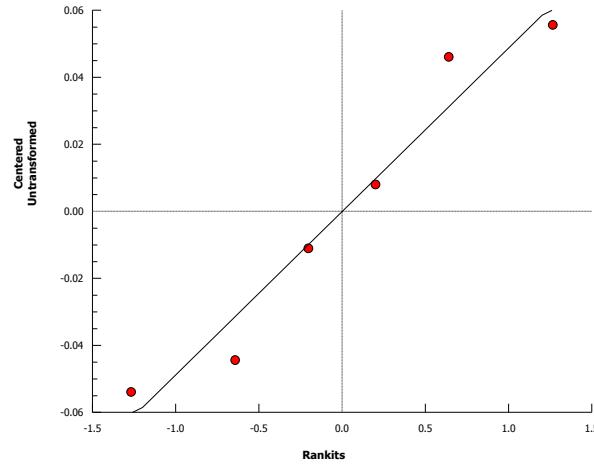
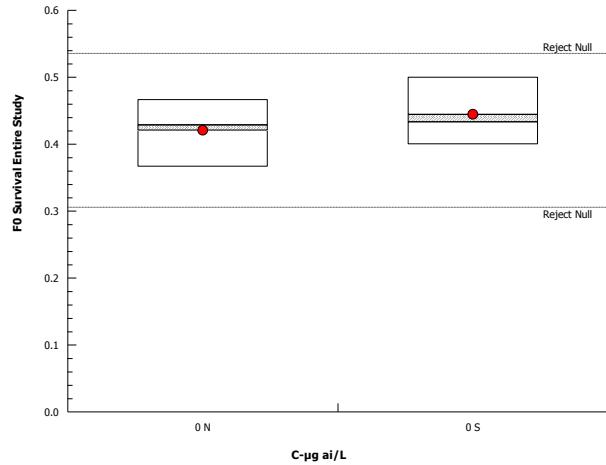
### Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha:1\%$ )
Variances	Variance Ratio F	1.02	199	0.9912	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.925	0.43	0.5402	Normal Distribution

### F0 Survival Entire Study Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Solvent Blank	3	0.444	0.318	0.571	0.433	0.4	0.5	0.0294	11.5%	0.0%
0	Negative Control	3	0.421	0.295	0.546	0.429	0.367	0.467	0.0291	12.0%	5.36%

### Graphics



## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	12-4389-3135	Endpoint:	F0 Survival Entire Study	CETIS Version:	CETISv1.8.7				
Analyzed:	20 Aug-14 9:22	Analysis:	Parametric-Control vs Treatments	Official Results:	Yes				
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:					
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater				
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea				
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h				
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Untransformed	NA	C > T	NA	NA	29.3%	2.57	>2.57	NA	

## Dunnett Multiple Comparison Test

Control	vs	C- $\mu$ g ai/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control		0.198	-0.935	2.5	0.123	4	0.9782	CDF	Non-Significant Effect
		0.365	0.0769	2.5	0.123	4	0.8098	CDF	Non-Significant Effect
		0.676	-0.0322	2.5	0.123	4	0.8426	CDF	Non-Significant Effect
		1.28	0.419	2.5	0.123	4	0.6831	CDF	Non-Significant Effect
		2.57	1.63	2.5	0.123	4	0.1961	CDF	Non-Significant Effect

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	0.02548002	0.005096004	5	1.4	0.2919	Non-Significant Effect
Error	0.04365848	0.003638207	12			
Total	0.0691385		17			

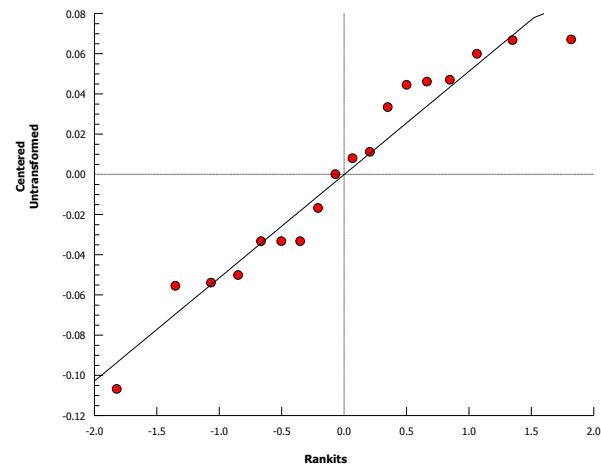
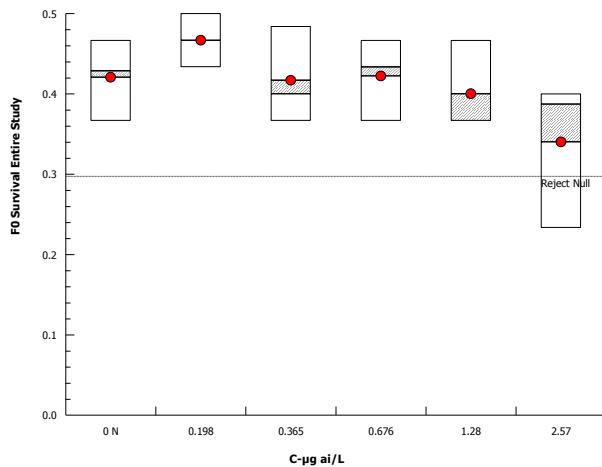
## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Bartlett Equality of Variance	1.85	15.1	0.8691	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.939	0.855	0.2744	Normal Distribution

## F0 Survival Entire Study Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	3	0.421	0.295	0.546	0.429	0.367	0.467	0.0291	12.0%	0.0%
0.198		3	0.467	0.384	0.549	0.467	0.433	0.5	0.0192	7.14%	-10.9%
0.365		3	0.417	0.267	0.567	0.4	0.367	0.484	0.0349	14.5%	0.9%
0.676		3	0.422	0.296	0.549	0.433	0.367	0.467	0.0294	12.1%	-0.38%
1.28		3	0.4	0.257	0.543	0.367	0.367	0.467	0.0333	14.4%	4.91%
2.57		3	0.34	0.11	0.57	0.387	0.233	0.4	0.0535	27.3%	19.1%

## Graphics



## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	14-9041-8131	Endpoint:	F0 Survival Entire Study	CETIS Version:	CETISv1.8.7				
Analyzed:	20 Aug-14 9:23	Analysis:	Parametric-Control vs Ord.Treatments	Official Results:	Yes				
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:					
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater				
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea				
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h				
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Untransformed	NA	C > T	NA	NA	22.6%	2.57	>2.57	NA	

## Williams Multiple Comparison Test

Control	vs	C- $\mu$ g ai/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control		0.198	-0.935	1.78	0.088	4	>0.05	CDF	Non-Significant Effect
		0.365	0.0769	1.87	0.092	4	>0.05	CDF	Non-Significant Effect
		0.676	0.0224	1.9	0.094	4	>0.05	CDF	Non-Significant Effect
		1.28	0.419	1.92	0.095	4	>0.05	CDF	Non-Significant Effect
		2.57	1.63	1.93	0.095	4	>0.05	CDF	Non-Significant Effect

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	0.02548002	0.005096004	5	1.4	0.2919	Non-Significant Effect
Error	0.04365848	0.003638207	12			
Total	0.0691385		17			

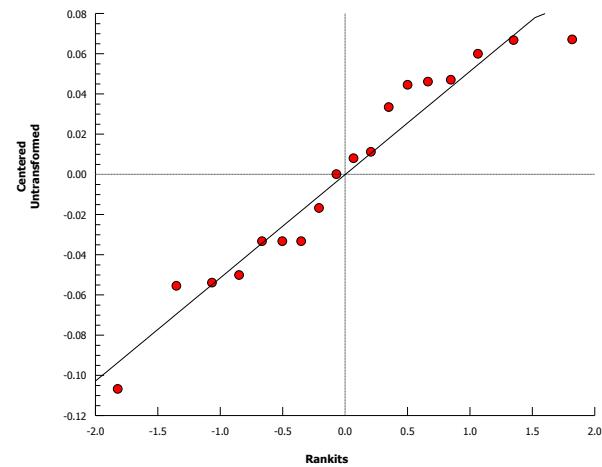
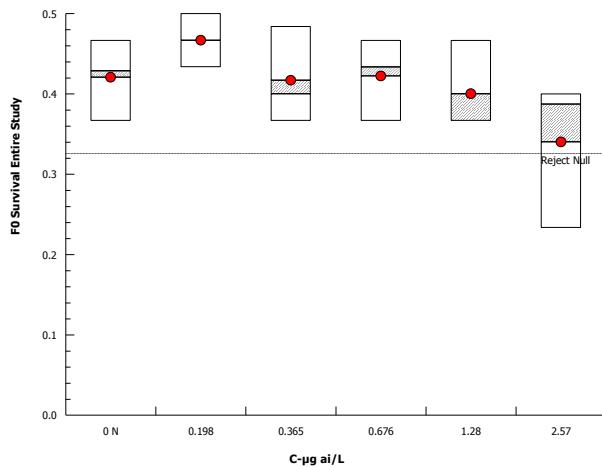
## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Bartlett Equality of Variance	1.85	15.1	0.8691	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.939	0.855	0.2744	Normal Distribution

## F0 Survival Entire Study Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	3	0.421	0.295	0.546	0.429	0.367	0.467	0.0291	12.0%	0.0%
0.198		3	0.467	0.384	0.549	0.467	0.433	0.5	0.0192	7.14%	-10.9%
0.365		3	0.417	0.267	0.567	0.4	0.367	0.484	0.0349	14.5%	0.9%
0.676		3	0.422	0.296	0.549	0.433	0.367	0.467	0.0294	12.1%	-0.38%
1.28		3	0.4	0.257	0.543	0.367	0.367	0.467	0.0333	14.4%	4.91%
2.57		3	0.34	0.11	0.57	0.387	0.233	0.4	0.0535	27.3%	19.1%

## Graphics



**CETIS Analytical Report**

**Report Date:** 20 Aug-14 09:32 (p 20 of 32)  
**Test Code:** 099100 49302901 | 19-2094-0221

**OPPTS 850.1350 Chronic Invert (Mysid)****ABC Labs**

<b>Analysis ID:</b> 06-0926-7904	<b>Endpoint:</b> F0 Survival Post Pairing	<b>CETIS Version:</b> CETISv1.8.7
<b>Analyzed:</b> 20 Aug-14 9:20	<b>Analysis:</b> Parametric-Two Sample	<b>Official Results:</b> Yes
<b>Batch ID:</b> 03-6598-0585	<b>Test Type:</b> Chronic Mysid (28-d)	<b>Analyst:</b>
<b>Start Date:</b> 16 Apr-13	<b>Protocol:</b> OPPTS 850.1350 Chronic Invert (Mysid Life	<b>Diluent:</b> Laboratory Seawater
<b>Ending Date:</b>	<b>Species:</b> Mysidopsis bahia	<b>Brine:</b> Crystal Sea
<b>Duration:</b> NA	<b>Source:</b> Lab In-House Culture	<b>Age:</b> <24h

Data Transform	Zeta	Alt Hyp	Trials	Seed	Test Result		
Untransformed	NA	C <> T	NA	NA	Passes f0 survival post pairing		

**Equal Variance t Two-Sample Test**

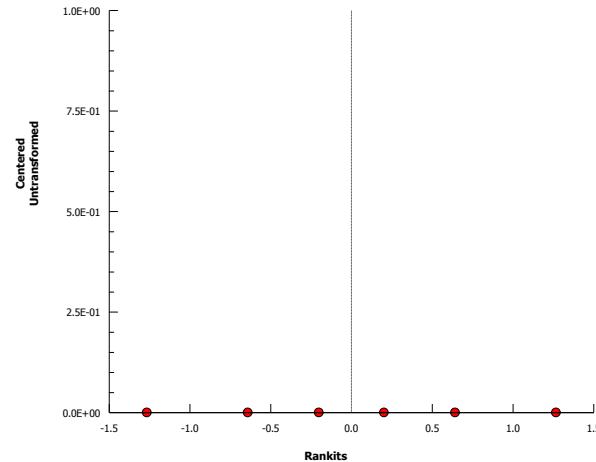
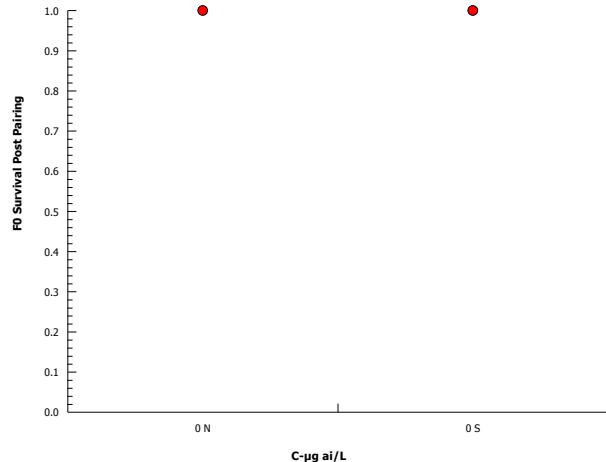
Control	vs	Control	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha:5\%$ )
Negative Control	Solvent Blank		0	2.78		4	1.0000	CDF	Non-Significant Effect

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha:5\%$ )
Between	0	0	1	65500	<0.0001	Significant Effect
Error	0	0	4			
Total	0		5			

**F0 Survival Post Pairing Summary**

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Solvent Blank	3	1	1	1	1	1	1	0	0.0%	0.0%
0	Negative Control	3	1	1	1	1	1	1	0	0.0%	0.0%

**Graphics**

# CETIS Analytical Report

Report Date: 20 Aug-14 09:32 (p 21 of 32)  
 Test Code: 099100 49302901 | 19-2094-0221

## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	07-4566-1300	Endpoint:	F0 Survival Post Pairing	CETIS Version:	CETISv1.8.7				
Analyzed:	20 Aug-14 9:22	Analysis:	Nonparametric-Two Sample	Official Results:	Yes				
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:					
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater				
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea				
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h				
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Untransformed	NA	C > T	NA	NA	4.31%	2.57	>2.57	NA	

### Mann-Whitney U Two-Sample Test

Control	vs	C- $\mu$ g ai/L	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control		0.198	4.5	NA	1	4	1.0000	Exact	Non-Significant Effect
		0.365	4.5	NA	1	4	1.0000	Exact	Non-Significant Effect
		0.676	6	NA	1	4	0.5000	Exact	Non-Significant Effect
		1.28	6	NA	1	4	0.5000	Exact	Non-Significant Effect
		2.57	4.5	NA	1	4	1.0000	Exact	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	0.002450388	0.0004900777	5	0.801	0.5702	Non-Significant Effect
Error	0.007346134	0.0006121778	12			
Total	0.009796523		17			

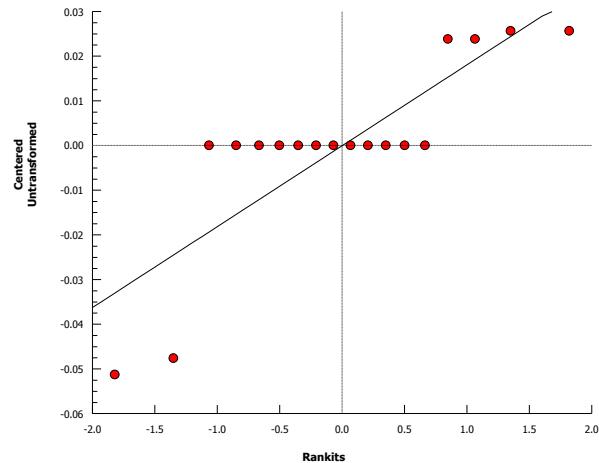
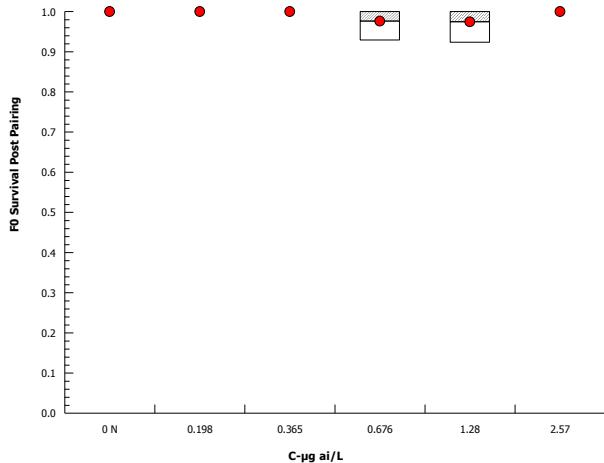
### Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Mod Levene Equality of Variance	0.801	8.75	0.5873	Equal Variances
Variances	Levene Equality of Variance	12.8	5.06	0.0002	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.712	0.855	0.0001	Non-normal Distribution

### F0 Survival Post Pairing Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	3	1	1	1	1	1	1	0	0.0%	0.0%
0.198		3	1	1	1	1	1	1	0	0.0%	0.0%
0.365		3	1	1	1	1	1	1	0	0.0%	0.0%
0.676		3	0.976	0.874	1	1	0.929	1	0.0238	4.22%	2.38%
1.28		3	0.974	0.864	1	1	0.923	1	0.0256	4.56%	2.56%
2.57		3	1	1	1	1	1	1	0	0.0%	0.0%

### Graphics



**CETIS Analytical Report**

**Report Date:** 20 Aug-14 09:32 (p 22 of 32)  
**Test Code:** 099100 49302901 | 19-2094-0221

**OPPTS 850.1350 Chronic Invert (Mysid)****ABC Labs**

<b>Analysis ID:</b> 20-1986-9793	<b>Endpoint:</b> F0 Survival Pre Pairing	<b>CETIS Version:</b> CETISv1.8.7
<b>Analyzed:</b> 20 Aug-14 8:25	<b>Analysis:</b> Parametric-Two Sample	<b>Official Results:</b> Yes
<b>Batch ID:</b> 03-6598-0585	<b>Test Type:</b> Chronic Mysid (28-d)	<b>Analyst:</b>
<b>Start Date:</b> 16 Apr-13	<b>Protocol:</b> OPPTS 850.1350 Chronic Invert (Mysid Life	<b>Diluent:</b> Laboratory Seawater
<b>Ending Date:</b>	<b>Species:</b> Mysidopsis bahia	<b>Brine:</b> Crystal Sea
<b>Duration:</b> NA	<b>Source:</b> Lab In-House Culture	<b>Age:</b> <24h

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C > T	NA	NA	20.4%	Passes f0 survival pre pairing

**Equal Variance t Two-Sample Test**

Control	vs	Control	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha:5\%$ )
Negative Control	Solvent Blank		1.37	2.78	0.199	4	0.2416	CDF	Non-Significant Effect

**ANOVA Table**

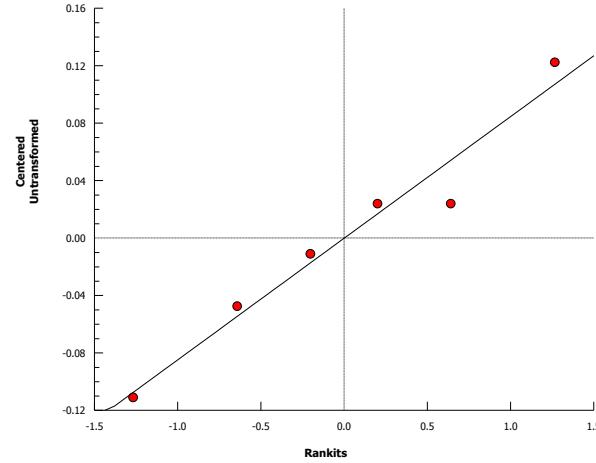
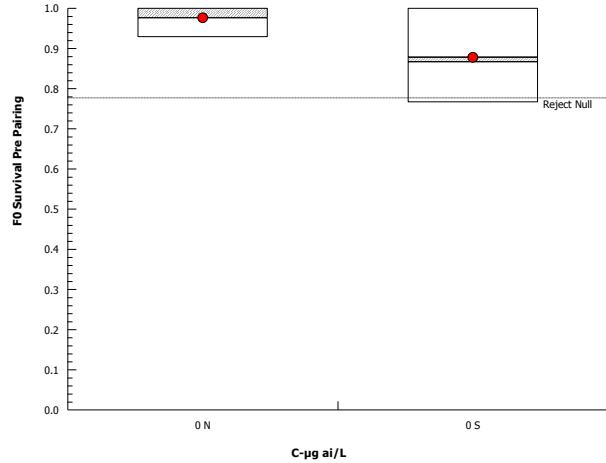
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha:5\%$ )
Between	0.01452759	0.01452759	1	1.89	0.2416	Non-Significant Effect
Error	0.03080877	0.007702192	4			
Total	0.04533636		5			

**Distributional Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha:1\%$ )
Variances	Variance Ratio F	8.06	199	0.2208	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.973	0.43	0.9134	Normal Distribution

**F0 Survival Pre Pairing Summary**

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Solvent Blank	3	0.878	0.587	1	0.867	0.767	1	0.0676	13.3%	0.0%
0	Negative Control	3	0.976	0.874	1	1	0.929	1	0.0238	4.22%	-11.2%

**Graphics**

# CETIS Analytical Report

Report Date: 20 Aug-14 09:32 (p 23 of 32)  
 Test Code: 099100 49302901 | 19-2094-0221

## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	19-8479-8919	Endpoint:	F0 Survival Pre Pairing	CETIS Version:	CETISv1.8.7				
Analyzed:	20 Aug-14 8:31	Analysis:	Parametric-Control vs Treatments	Official Results:	Yes				
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:					
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater				
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea				
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h				
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Untransformed	NA	C > T	NA	NA	9.24%	2.57	>2.57	NA	

### Dunnett Multiple Comparison Test

Control	vs	C- $\mu$ g ai/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control		0.198	-0.352	2.5	0.090	4	0.9156	CDF	Non-Significant Effect
		0.365	0.254	2.5	0.090	4	0.7483	CDF	Non-Significant Effect
		0.676	-0.044	2.5	0.090	4	0.8459	CDF	Non-Significant Effect
		1.28	1.19	2.5	0.090	4	0.3471	CDF	Non-Significant Effect
		2.57	1.5	2.5	0.090	4	0.2368	CDF	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	0.01078633	0.002157266	5	1.11	0.4068	Non-Significant Effect
Error	0.02340213	0.001950178	12			
Total	0.03418846		17			

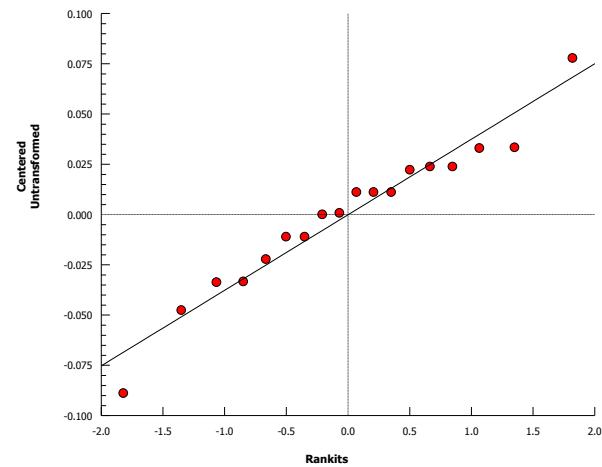
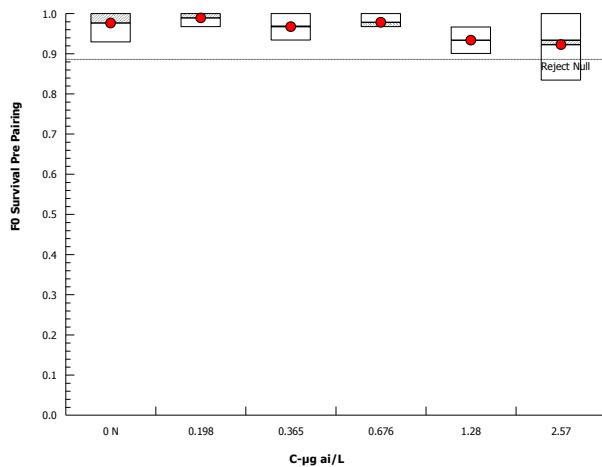
### Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Bartlett Equality of Variance	5.53	15.1	0.3550	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.964	0.855	0.6892	Normal Distribution

### F0 Survival Pre Pairing Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	3	0.976	0.874	1	1	0.929	1	0.0238	4.22%	0.0%
0.198		3	0.989	0.941	1	1	0.967	1	0.0111	1.95%	-1.3%
0.365		3	0.967	0.884	1	0.968	0.933	1	0.0192	3.45%	0.94%
0.676		3	0.978	0.93	1	0.967	0.967	1	0.0111	1.97%	-0.16%
1.28		3	0.933	0.851	1	0.933	0.9	0.967	0.0192	3.57%	4.39%
2.57		3	0.922	0.714	1	0.933	0.833	1	0.0484	9.1%	5.53%

### Graphics



# CETIS Analytical Report

Report Date: 20 Aug-14 09:32 (p 24 of 32)  
 Test Code: 099100 49302901 | 19-2094-0221

## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	06-7170-5843	Endpoint:	F0 Survival Pre Pairing	CETIS Version:	CETISv1.8.7
Analyzed:	20 Aug-14 8:34	Analysis:	Parametric-Control vs Ord.Treatments	Official Results:	Yes
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:	
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD NOEL LOEL TOEL TU
Untransformed	NA	C > T	NA	NA	7.12% 2.57 >2.57 NA

### Williams Multiple Comparison Test

Control	vs	C- $\mu$ g ai/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control		0.198	-0.352	1.78	0.064	4	>0.05	CDF	Non-Significant Effect
		0.365	0.254	1.87	0.068	4	>0.05	CDF	Non-Significant Effect
		0.676	0.105	1.9	0.069	4	>0.05	CDF	Non-Significant Effect
		1.28	1.19	1.92	0.069	4	>0.05	CDF	Non-Significant Effect
		2.57	1.5	1.93	0.07	4	>0.05	CDF	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	0.01078633	0.002157266	5	1.11	0.4068	Non-Significant Effect
Error	0.02340213	0.001950178	12			
Total	0.03418846		17			

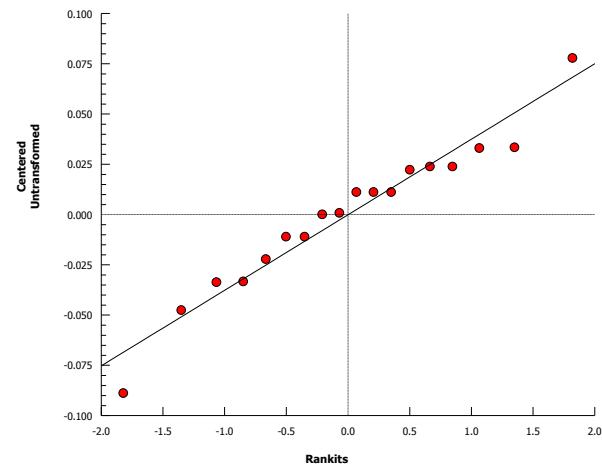
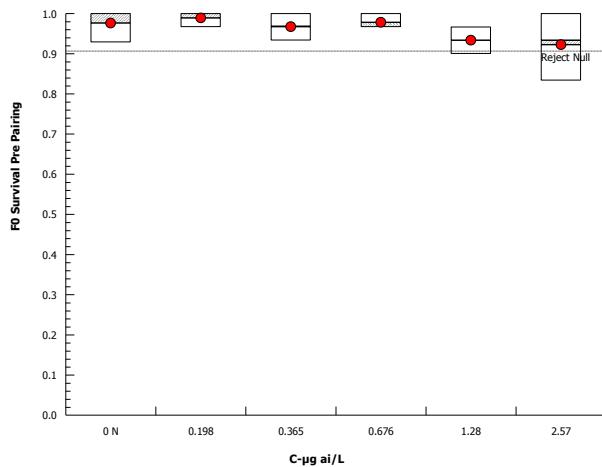
### Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Bartlett Equality of Variance	5.53	15.1	0.3550	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.964	0.855	0.6892	Normal Distribution

### F0 Survival Pre Pairing Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	3	0.976	0.874	1	1	0.929	1	0.0238	4.22%	0.0%
0.198		3	0.989	0.941	1	1	0.967	1	0.0111	1.95%	-1.3%
0.365		3	0.967	0.884	1	0.968	0.933	1	0.0192	3.45%	0.94%
0.676		3	0.978	0.93	1	0.967	0.967	1	0.0111	1.97%	-0.16%
1.28		3	0.933	0.851	1	0.933	0.9	0.967	0.0192	3.57%	4.39%
2.57		3	0.922	0.714	1	0.933	0.833	1	0.0484	9.1%	5.53%

### Graphics



# CETIS Analytical Report

Report Date: 20 Aug-14 09:32 (p 25 of 32)  
 Test Code: 099100 49302901 | 19-2094-0221

## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	18-0554-3173	Endpoint:	F1 Survival	CETIS Version:	CETISv1.8.7
Analyzed:	20 Aug-14 8:25	Analysis:	Parametric-Two Sample	Official Results:	Yes
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:	
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C <> T	NA	NA	18.5%	Passes f1 survival

### Equal Variance t Two-Sample Test

Control	vs	Control	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control	Solvent Blank		1	2.78	0.185	4	0.3739	CDF	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	0.006666667	0.006666667	1	1	0.3739	Non-Significant Effect
Error	0.026666667	0.006666667	4			
Total	0.033333334		5			

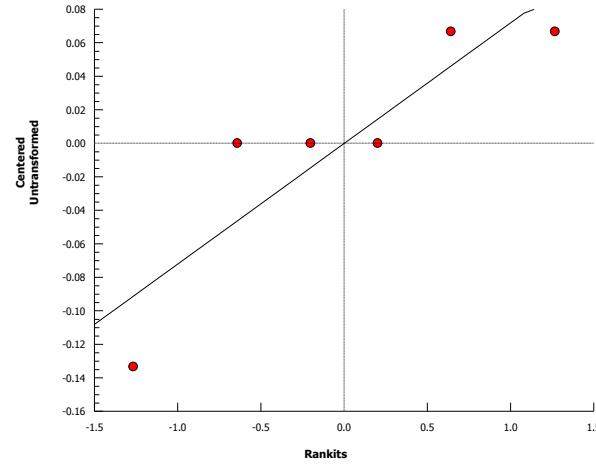
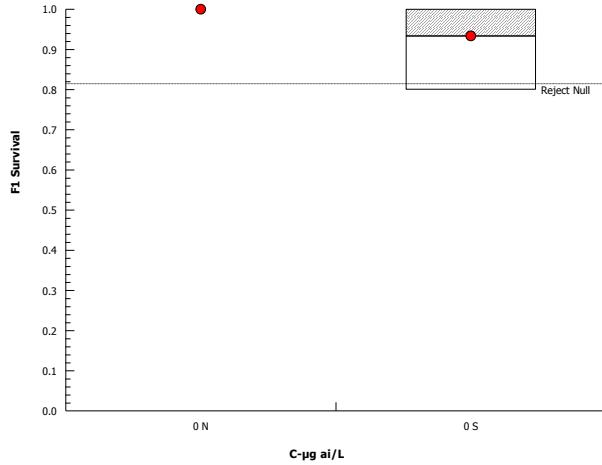
### Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Mod Levene Equality of Variance	1	98.5	0.4226	Equal Variances
Variances	Levene Equality of Variance	16	21.2	0.0161	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.814	0.43	0.0778	Normal Distribution

### F1 Survival Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Solvent Blank	3	0.933	0.646	1	1	0.8	1	0.0667	12.4%	0.0%
0	Negative Control	3	1	1	1	1	1	1	0	0.0%	-7.14%

### Graphics



## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	11-5125-1646	Endpoint:	F1 Survival	CETIS Version:	CETISv1.8.7				
Analyzed:	20 Aug-14 8:31	Analysis:	Parametric-Control vs Treatments	Official Results:	Yes				
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:					
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater				
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea				
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h				
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Untransformed	NA	C > T	NA	NA	73.2%	2.57	>2.57	NA	

## Dunnett Multiple Comparison Test

Control	vs	C- $\mu$ g ai/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control		0.198	0	2.59	0.517	4	0.8532	CDF	Non-Significant Effect
		0.365	0.111	2.59	0.517	4	0.8202	CDF	Non-Significant Effect
		0.676	0.222	2.59	0.517	4	0.7828	CDF	Non-Significant Effect
		1.28	1.88	2.59	0.517	4	0.1499	CDF	Non-Significant Effect
		2.57	0	2.59	0.732	2	0.8532	CDF	Non-Significant Effect

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	0.3195558	0.06391117	5	1.07	0.4336	Non-Significant Effect
Error	0.599676	0.05996759	10			
Total	0.9192318		15			

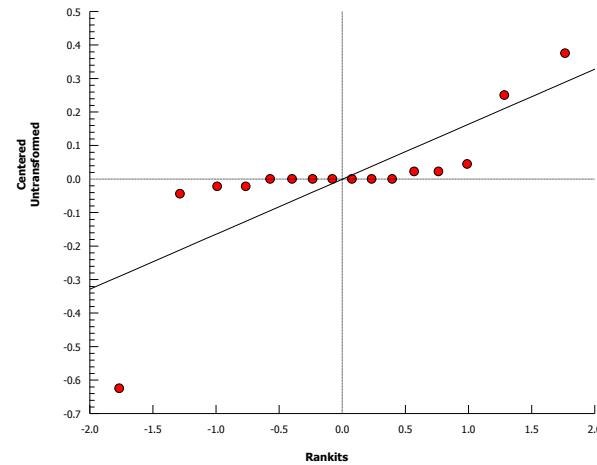
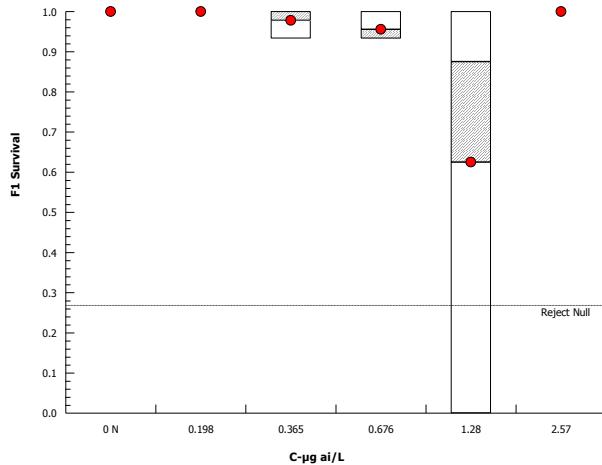
## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Levene Equality of Variance	10.8	5.64	0.0009	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.664	0.841	<0.0001	Non-normal Distribution

## F1 Survival Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	3	1	1	1	1	1	1	0	0.0%	0.0%
0.198		3	1	1	1	1	1	1	0	0.0%	0.0%
0.365		3	0.978	0.882	1	1	0.933	1	0.0222	3.94%	2.22%
0.676		3	0.956	0.86	1	0.933	0.933	1	0.0222	4.03%	4.44%
1.28		3	0.625	0	1	0.875	0	1	0.315	87.2%	37.5%
2.57		1	1			1	1	1	0	0.0%	0.0%

## Graphics



# CETIS Analytical Report

Report Date: 20 Aug-14 09:32 (p 27 of 32)  
 Test Code: 099100 49302901 | 19-2094-0221

## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	13-6555-6701	Endpoint:	n Offpspring Per Female	CETIS Version:	CETISv1.8.7
Analyzed:	20 Aug-14 8:25	Analysis:	Parametric-Two Sample	Official Results:	Yes
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:	
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C <> T	NA	NA	111.0%	Passes n offpspring per female

### Equal Variance t Two-Sample Test

Control	vs	Control	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control	Solvent Blank		0.263	2.78	14.1	4	0.8058	CDF	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	2.666667	2.666667	1	0.069	0.8058	Non-Significant Effect
Error	154.6533	38.66333	4			
Total	157.32		5			

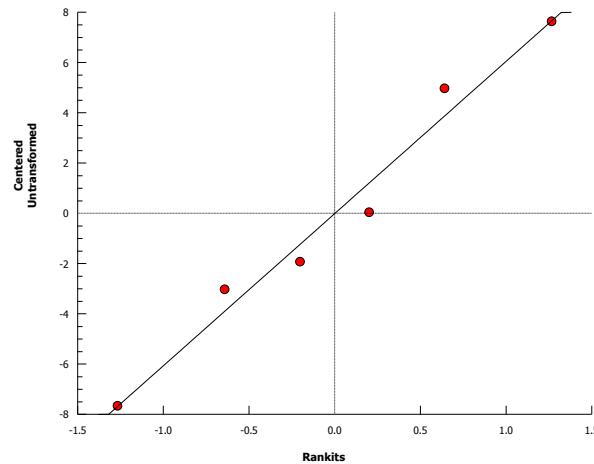
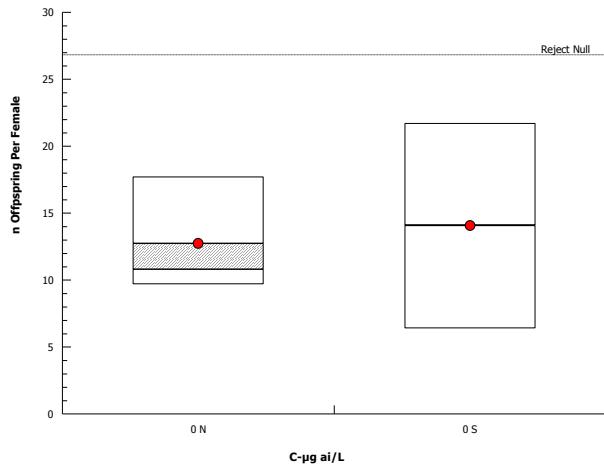
### Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Variance Ratio F	3.11	199	0.4863	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.971	0.43	0.9016	Normal Distribution

### n Offpspring Per Female Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Solvent Blank	3	14.1	-4.94	33.1	14.1	6.4	21.7	4.42	54.4%	0.0%
0	Negative Control	3	12.7	1.96	23.5	10.8	9.7	17.7	2.5	34.1%	9.48%

### Graphics



## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	16-4899-7470	Endpoint:	n Offpspring Per Female	CETIS Version:	CETISv1.8.7				
Analyzed:	20 Aug-14 8:32	Analysis:	Nonparametric-Two Sample	Official Results:	Yes				
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:					
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater				
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea				
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h				
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Untransformed	NA	C > T	NA	NA	77.8%	<0.198	0.198	NA	

## Mann-Whitney U Two-Sample Test

Control	vs	C- $\mu$ g ai/L	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control		0.198*	9	NA	0	4	0.0500	Exact	Significant Effect
		0.365	3	NA	0	4	0.7500	Exact	Non-Significant Effect
		0.676	4	NA	0	4	0.6500	Exact	Non-Significant Effect
		1.28	7	NA	0	4	0.2000	Exact	Non-Significant Effect
		2.57*	9	NA	0	4	0.0500	Exact	Significant Effect

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	481.2914	96.25827	5	2.97	0.0569	Non-Significant Effect
Error	389.0966	32.42472	12			
Total	870.3879		17			

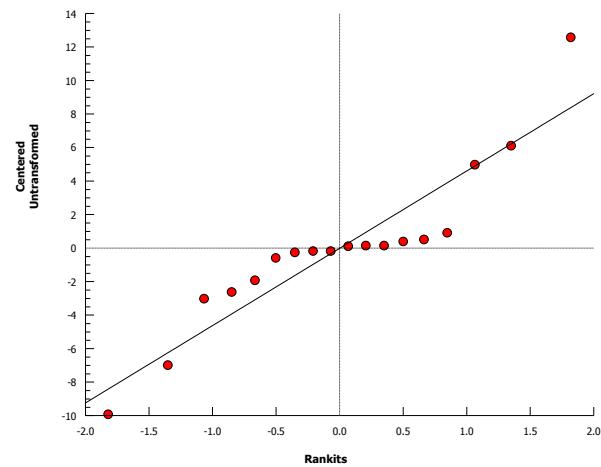
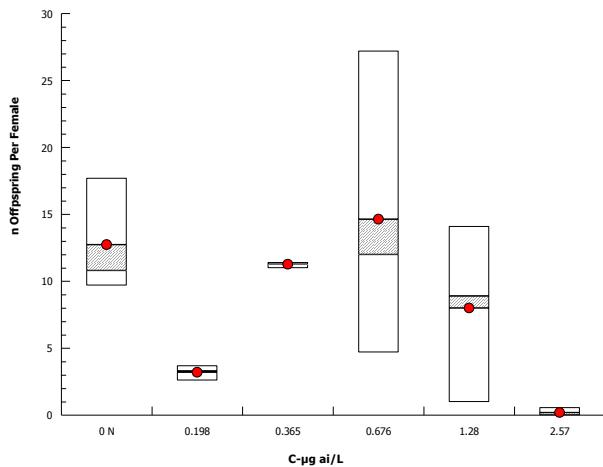
## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Bartlett Equality of Variance	26.1	15.1	<0.0001	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.886	0.855	0.0334	Normal Distribution

## n Offpspring Per Female Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	3	12.7	1.96	23.5	10.8	9.7	17.7	2.5	34.1%	0.0%
0.198		3	3.2	1.82	4.58	3.3	2.6	3.7	0.321	17.4%	74.9%
0.365		3	11.3	10.7	11.8	11.4	11	11.4	0.133	2.05%	11.5%
0.676		3	14.6	-13.9	43.1	12	4.7	27.2	6.63	78.4%	-14.9%
1.28		3	8	-8.39	24.4	8.9	1	14.1	3.81	82.5%	37.2%
2.57		3	0.19	-0.628	1.01	0	0	0.57	0.19	173.0%	98.5%

## Graphics



# CETIS Analytical Report

Report Date: 20 Aug-14 09:32 (p 29 of 32)  
 Test Code: 099100 49302901 | 19-2094-0221

## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	16-9803-4243	Endpoint:	Time to First Brood	CETIS Version:	CETISv1.8.7
Analyzed:	20 Aug-14 8:25	Analysis:	Parametric-Two Sample	Official Results:	Yes
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:	
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C <> T	NA	NA	21.6%	Passes time to first brood

### Equal Variance t Two-Sample Test

Control	vs	Control	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha:5\%$ )
Negative Control	Solvent Blank		0.191	2.78	3.87	4	0.8578	CDF	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha:5\%$ )
Between	0.1066667	0.1066667	1	0.0365	0.8578	Non-Significant Effect
Error	11.68667	2.921667	4			
Total	11.79333		5			

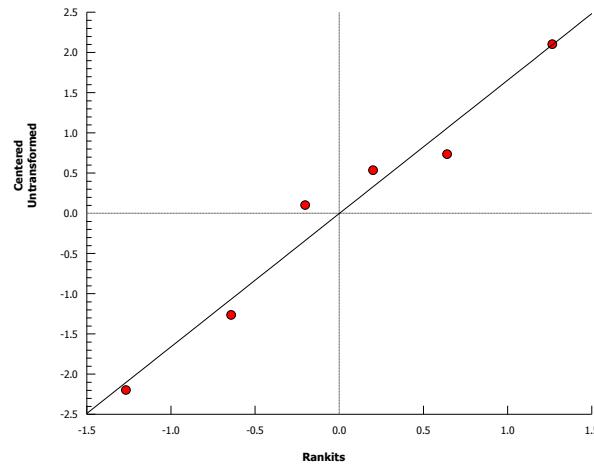
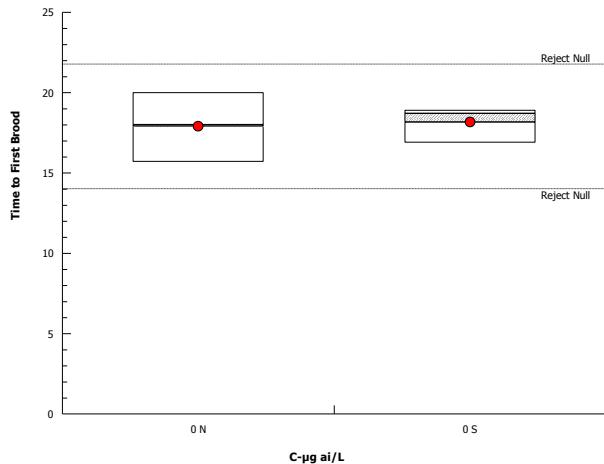
### Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha:1\%$ )
Variances	Variance Ratio F	3.82	199	0.4153	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.969	0.43	0.8828	Normal Distribution

### Time to First Brood Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Solvent Blank	3	18.2	15.4	20.9	18.7	16.9	18.9	0.636	6.06%	0.0%
0	Negative Control	3	17.9	12.6	23.2	18	15.7	20	1.24	12.0%	1.47%

### Graphics



## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	15-7630-3934	Endpoint:	Time to First Brood			CETIS Version:	CETISv1.8.7			
Analyzed:	20 Aug-14 8:33	Analysis:	Parametric-Control vs Treatments				Official Results: Yes			
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)				Analyst:			
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life				Diluent:	Laboratory Seawater		
Ending Date:		Species:	Mysidopsis bahia				Brine:	Crystal Sea		
Duration:	NA	Source:	Lab In-House Culture				Age:	<24h		
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU	
Untransformed	NA	C < T	NA	NA	51.3%	2.57	>2.57	NA		

## Dunnett Multiple Comparison Test

Control	vs	C- $\mu$ g ai/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control		0.198	-0.0931	2.59	6.49	4	0.8774	CDF	Non-Significant Effect
		0.365	0.226	2.59	6.49	4	0.7815	CDF	Non-Significant Effect
		0.676	0.425	2.59	6.49	4	0.7043	CDF	Non-Significant Effect
		1.28	1.57	2.59	6.49	4	0.2296	CDF	Non-Significant Effect
		2.57	-0.254	2.59	9.17	2	0.9121	CDF	Non-Significant Effect

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	37.51271	7.502542	5	0.796	0.5767	Non-Significant Effect
Error	94.26667	9.426666	10			
Total	131.7794		15			

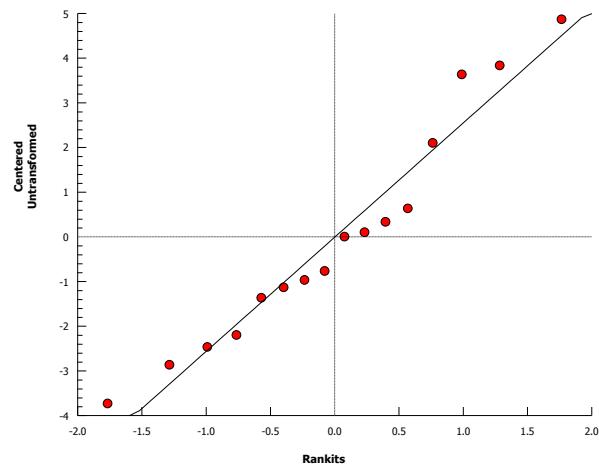
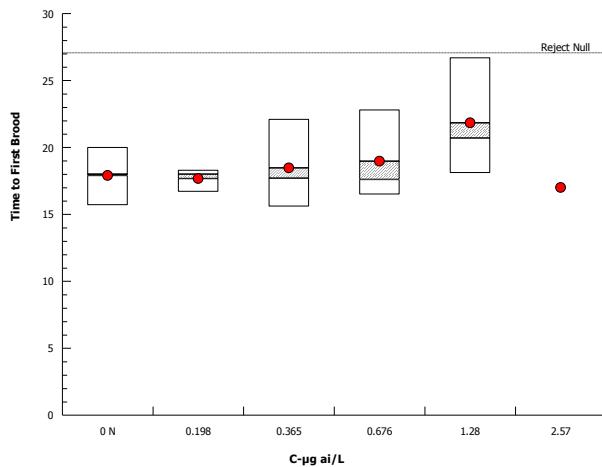
## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Levene Equality of Variance	1.84	5.64	0.1917	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.945	0.841	0.4157	Normal Distribution

## Time to First Brood Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	3	17.9	12.6	23.2	18	15.7	20	1.24	12.0%	0.0%
0.198		3	17.7	15.6	19.8	18	16.7	18.3	0.491	4.81%	1.3%
0.365		3	18.5	10.2	26.7	17.7	15.6	22.1	1.92	18.0%	-3.17%
0.676		3	19	10.6	27.3	17.6	16.5	22.8	1.94	17.7%	-5.96%
1.28		3	21.8	10.9	32.8	20.7	18.1	26.7	2.55	20.2%	-22.0%
2.57		1	17			17	17	17	0	0.0%	5.03%

## Graphics



## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	19-5810-4521	Endpoint:	Time to First Brood	CETIS Version:	CETISv1.8.7
Analyzed:	20 Aug-14 8:33	Analysis:	Parametric-Control vs Treatments	Official Results:	Yes

Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent: Laboratory Seawater
Ending Date:		Species:	Mysidopsis bahia	Brine: Crystal Sea
Duration:	NA	Source:	Lab In-House Culture	Age: <24h

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Untransformed	NA	C < T	NA	NA	34.5%	1.28	>1.28	NA	

## Dunnett Multiple Comparison Test

Control	vs	C- $\mu$ g ai/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control		0.198	-0.0931	2.47	6.18	4	0.8285	CDF	Non-Significant Effect
		0.365	0.226	2.47	6.18	4	0.7197	CDF	Non-Significant Effect
		0.676	0.425	2.47	6.18	4	0.6382	CDF	Non-Significant Effect
		1.28	1.57	2.47	6.18	4	0.1936	CDF	Non-Significant Effect

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	33.88667	8.471666	4	0.899	0.5001	Non-Significant Effect
Error	94.26667	9.426666	10			
Total	128.1533		14			

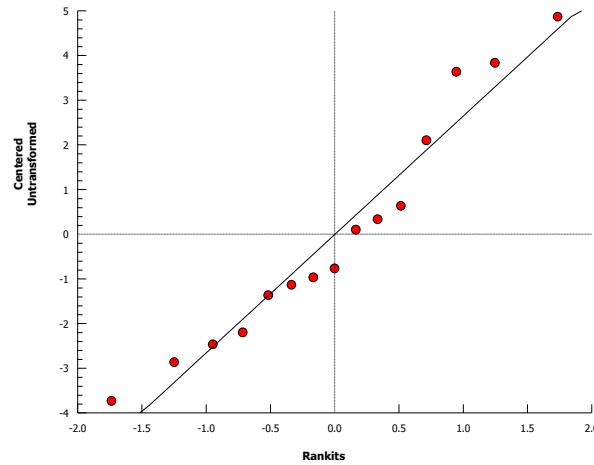
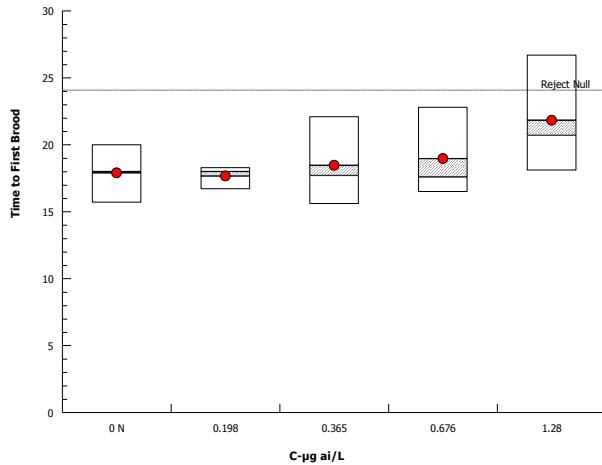
## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Bartlett Equality of Variance	3.69	13.3	0.4491	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.941	0.833	0.3969	Normal Distribution

## Time to First Brood Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	3	17.9	12.6	23.2	18	15.7	20	1.24	12.0%	0.0%
0.198		3	17.7	15.6	19.8	18	16.7	18.3	0.491	4.81%	1.3%
0.365		3	18.5	10.2	26.7	17.7	15.6	22.1	1.92	18.0%	-3.17%
0.676		3	19	10.6	27.3	17.6	16.5	22.8	1.94	17.7%	-5.96%
1.28		3	21.8	10.9	32.8	20.7	18.1	26.7	2.55	20.2%	-22.0%

## Graphics



## OPPTS 850.1350 Chronic Invert (Mysid)

ABC Labs

Analysis ID:	07-3005-9020	Endpoint:	Time to First Brood	CETIS Version:	CETISv1.8.7
Analyzed:	20 Aug-14 8:33	Analysis:	Parametric-Control vs Ord.Treatments	Official Results:	Yes
Batch ID:	03-6598-0585	Test Type:	Chronic Mysid (28-d)	Analyst:	
Start Date:	16 Apr-13	Protocol:	OPPTS 850.1350 Chronic Invert (Mysid Life	Diluent:	Laboratory Seawater
Ending Date:		Species:	Mysidopsis bahia	Brine:	Crystal Sea
Duration:	NA	Source:	Lab In-House Culture	Age:	<24h

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Untransformed	NA	C < T	NA	NA	27.4%	1.28	>1.28	NA	

## Williams Multiple Comparison Test

Control	vs	C- $\mu$ g ai/L	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control		0.198	-0.0931	1.81	4.54	4	>0.05	CDF	Non-Significant Effect
		0.365	0.0665	1.91	4.78	4	>0.05	CDF	Non-Significant Effect
		0.676	0.186	1.94	4.86	4	>0.05	CDF	Non-Significant Effect
		1.28	0.532	1.96	4.9	4	>0.05	CDF	Non-Significant Effect

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	33.88667	8.471666	4	0.899	0.5001	Non-Significant Effect
Error	94.26667	9.426666	10			
Total	128.1533		14			

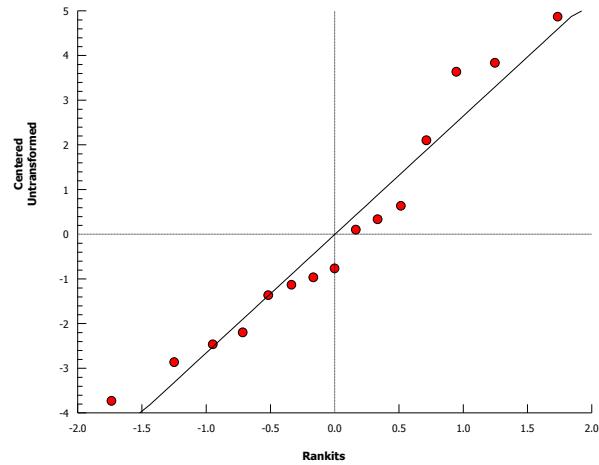
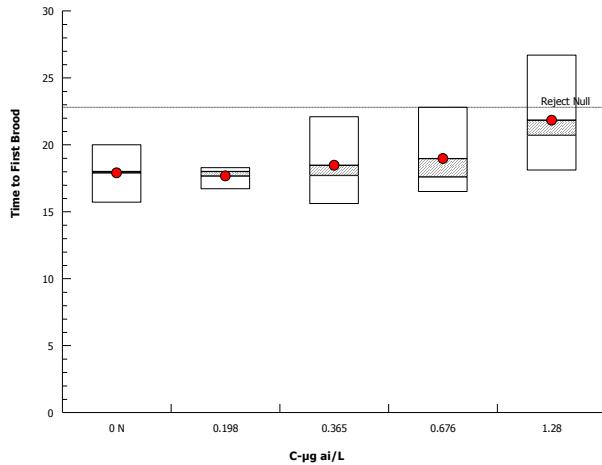
## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Bartlett Equality of Variance	3.69	13.3	0.4491	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.941	0.833	0.3969	Normal Distribution

## Time to First Brood Summary

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	3	17.9	12.6	23.2	18	15.7	20	1.24	12.0%	0.0%
0.198		3	17.7	15.6	19.8	18	16.7	18.3	0.491	4.81%	1.3%
0.365		3	18.5	10.2	26.7	17.7	15.6	22.1	1.92	18.0%	-3.17%
0.676		3	19	10.6	27.3	17.6	16.5	22.8	1.94	17.7%	-5.96%
1.28		3	21.8	10.9	32.8	20.7	18.1	26.7	2.55	20.2%	-22.0%

## Graphics



**CETIS Summary Report**

**Report Date:** 20 Aug-14 09:33 (p 1 of 7)  
**Test Code:** 099100 49302901 | 19-2094-0221

**OPPTS 850.1350 Chronic Invert (Mysid)****ABC Labs**

<b>Batch ID:</b> 03-6598-0585	<b>Test Type:</b> Chronic Mysid (28-d)	<b>Analyst:</b>
<b>Start Date:</b> 16 Apr-13	<b>Protocol:</b> OPPTS 850.1350 Chronic Invert (Mysid Life	<b>Diluent:</b> Laboratory Seawater
<b>Ending Date:</b>	<b>Species:</b> Mysidopsis bahia	<b>Brine:</b> Crystal Sea
<b>Duration:</b> NA	<b>Source:</b> Lab In-House Culture	<b>Age:</b> <24h
<b>Sample ID:</b> 16-7270-0233	<b>Code:</b> 099100	<b>Client:</b> CDM Smith
<b>Sample Date:</b> 16 Apr-13	<b>Material:</b> Pyraclostrobin	<b>Project:</b> Fungicide
<b>Receive Date:</b>	<b>Source:</b> BASF Corporation	
<b>Sample Age:</b> NA	<b>Station:</b>	

**Batch Note:** flow-through 099100 49302901**Sample Note:** flow-through 099100 49302901**Comparison Summary**

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
19-2858-1562	F0 Female Dry Weight	0	>0		15.3%		Equal Variance t Two-Sample Test
01-2636-5967	F0 Female Dry Weight	1.28	2.57	1.814	21.9%		Dunnett Multiple Comparison Test
15-3265-9837	F0 Female Dry Weight	1.28	2.57	1.814	16.8%		Williams Multiple Comparison Test
15-1983-1860	F0 Female Length	0	>0		4.1%		Equal Variance t Two-Sample Test
01-2510-9645	F0 Female Length	2.57	>2.57	NA	6.06%		Dunnett Multiple Comparison Test
14-5851-3276	F0 Male Dry Weight	0	>0		17.4%		Equal Variance t Two-Sample Test
02-5175-4974	F0 Male Dry Weight	1.28	2.57	1.814	16.2%		Dunnett Multiple Comparison Test
13-9859-4303	F0 Male Dry Weight	0.365	0.676	0.4967	12.5%		Williams Multiple Comparison Test
09-7467-7417	F0 Male Length	0	>0		3.68%		Equal Variance t Two-Sample Test
16-5427-0214	F0 Male Length	2.57	>2.57	NA	4.94%		Dunnett Multiple Comparison Test
12-5899-3446	F0 Mortality Entire Study	0	>0		4.58%		Equal Variance t Two-Sample Test
10-8104-8611	F0 Mortality Entire Study	2.57	>2.57	NA	3.14%		Mann-Whitney U Two-Sample Test
00-0623-6228	F0 Mortality Post Pairing	0	>0		9.58%		Equal Variance t Two-Sample Test
00-8020-7174	F0 Mortality Post Pairing	2.57	>2.57	NA	7.58%		Dunnett Multiple Comparison Test
19-1774-3589	F0 Mortality Pre Pairing	0	>0		20.4%		Equal Variance t Two-Sample Test
16-8137-5211	F0 Mortality Pre Pairing	2.57	>2.57	NA	9.24%		Dunnett Multiple Comparison Test
17-3088-1174	F0 Survival Entire Study	0	>0		27.3%		Equal Variance t Two-Sample Test
12-4389-3135	F0 Survival Entire Study	2.57	>2.57	NA	29.3%		Dunnett Multiple Comparison Test
14-9041-8131	F0 Survival Entire Study	2.57	>2.57	NA	22.6%		Williams Multiple Comparison Test
06-0926-7904	F0 Survival Post Pairing	0	>0		NA		Equal Variance t Two-Sample Test
07-4566-1300	F0 Survival Post Pairing	2.57	>2.57	NA	4.31%		Mann-Whitney U Two-Sample Test
20-1986-9793	F0 Survival Pre Pairing	0	>0		20.4%		Equal Variance t Two-Sample Test
19-8479-8919	F0 Survival Pre Pairing	2.57	>2.57	NA	9.24%		Dunnett Multiple Comparison Test
06-7170-5843	F0 Survival Pre Pairing	2.57	>2.57	NA	7.12%		Williams Multiple Comparison Test
18-0554-3173	F1 Survival	0	>0		18.5%		Equal Variance t Two-Sample Test
11-5125-1646	F1 Survival	2.57	>2.57	NA	73.2%		Dunnett Multiple Comparison Test
13-6555-6701	n Offspring Per Female	0	>0		111.0%		Equal Variance t Two-Sample Test
16-4899-7470	n Offspring Per Female	<0.198	0.198	NA	77.8%		Mann-Whitney U Two-Sample Test
16-9803-4243	Time to First Brood	0	>0		21.6%		Equal Variance t Two-Sample Test
15-7630-3934	Time to First Brood	2.57	>2.57	NA	51.3%		Dunnett Multiple Comparison Test
19-5810-4521	Time to First Brood	1.28	>1.28	NA	34.5%		Dunnett Multiple Comparison Test
07-3005-9020	Time to First Brood	1.28	>1.28	NA	27.4%		Williams Multiple Comparison Test

**CETIS Summary Report**

 Report Date: 20 Aug-14 09:33 (p 2 of 7)  
 Test Code: 099100 49302901 | 19-2094-0221

**OPPTS 850.1350 Chronic Invert (Mysid)**
**ABC Labs**
**F0 Female Dry Weight Summary**

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Solvent Blank	3	1.45	1.36	1.53	1.41	1.48	0.0203	0.0351	2.43%	0.0%
0	Negative Control	3	1.51	1.16	1.86	1.38	1.66	0.0811	0.14	9.28%	-4.61%
0.198		3	1.39	1.12	1.66	1.3	1.51	0.0624	0.108	7.78%	3.92%
0.365		3	1.46	1.19	1.72	1.34	1.55	0.0617	0.107	7.34%	-0.69%
0.676		3	1.3	0.593	2	0.996	1.56	0.164	0.284	21.9%	10.2%
1.28		3	1.37	1.01	1.73	1.21	1.49	0.0833	0.144	10.5%	5.3%
2.57		3	1.01	0.731	1.29	0.932	1.14	0.065	0.113	11.1%	30.1%

**F0 Female Length Summary**

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Solvent Blank	3	6.32	5.94	6.69	6.17	6.47	0.0867	0.15	2.38%	0.0%
0	Negative Control	3	6.23	6.1	6.36	6.19	6.29	0.0306	0.0529	0.85%	1.37%
0.198		3	6.44	6.3	6.58	6.38	6.49	0.0321	0.0557	0.87%	-1.95%
0.365		3	6.45	6.15	6.75	6.34	6.58	0.0696	0.121	1.87%	-2.16%
0.676		3	6.08	5.12	7.03	5.64	6.37	0.223	0.386	6.34%	3.8%
1.28		3	6.27	5.97	6.57	6.15	6.39	0.0694	0.12	1.92%	0.79%
2.57		3	5.98	5.61	6.35	5.89	6.15	0.085	0.147	2.46%	5.33%

**F0 Male Dry Weight Summary**

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Solvent Blank	3	1.07	1.03	1.1	1.05	1.08	0.00882	0.0153	1.43%	0.0%
0	Negative Control	3	1.14	0.837	1.45	1.04	1.28	0.0713	0.123	10.8%	-7.19%
0.198		3	1.07	0.855	1.29	1.02	1.17	0.05	0.0866	8.09%	-0.31%
0.365		3	1.12	1.02	1.22	1.08	1.16	0.0233	0.0404	3.62%	-4.69%
0.676		3	0.986	0.758	1.21	0.888	1.07	0.053	0.0918	9.31%	7.56%
1.28		3	0.974	0.766	1.18	0.918	1.07	0.0484	0.0838	8.6%	8.72%
2.57		3	0.935	0.695	1.17	0.826	1.01	0.0558	0.0966	10.3%	12.3%

**F0 Male Length Summary**

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Solvent Blank	3	6.15	5.97	6.32	6.08	6.22	0.0406	0.0702	1.14%	0.0%
0	Negative Control	3	6.11	5.81	6.41	6	6.24	0.07	0.121	1.98%	0.6%
0.198		3	6.08	5.86	6.29	6	6.17	0.0498	0.0862	1.42%	1.14%
0.365		3	6.2	5.91	6.48	6.12	6.33	0.0669	0.116	1.87%	-0.81%
0.676		3	5.95	5.63	6.28	5.82	6.08	0.0751	0.13	2.19%	3.15%
1.28		3	6.01	5.5	6.51	5.88	6.24	0.117	0.202	3.37%	2.28%
2.57		3	5.83	5.34	6.31	5.7	6.05	0.112	0.194	3.33%	5.21%

**F0 Mortality Entire Study Summary**

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Solvent Blank	3	0.0111	0	0.0589	0	0.0333	0.0111	0.0192	173.0%	0.0%
0	Negative Control	3	0.0119	0	0.0631	0	0.0357	0.0119	0.0206	173.0%	0.08%
0.198		3	0	0	0	0	0	0	0	0	-1.12%
0.365		3	0.0333	0	0.116	0	0.0667	0.0192	0.0333	100.0%	2.25%
0.676		3	0.0333	0.0333	0.0333	0.0333	0.0333	0	0	0.0%	2.25%
1.28		3	0.0444	0	0.0923	0.0333	0.0667	0.0111	0.0192	43.3%	3.37%
2.57		3	0	0	0	0	0	0	0	0	-1.12%

**F0 Mortality Post Pairing Summary**

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Solvent Blank	3	0.0238	0	0.126	0	0.0714	0.0238	0.0412	173.0%	0.0%
0	Negative Control	3	0.0238	0	0.126	0	0.0714	0.0238	0.0412	173.0%	0.0%
0.198		3	0	0	0	0	0	0	0	0	-2.44%
0.365		3	0.0683	0	0.234	0	0.133	0.0385	0.0667	97.8%	4.55%
0.676		3	0.0683	0.0614	0.0751	0.0667	0.0714	0.00159	0.00275	4.03%	4.55%
1.28		3	0.0955	0	0.198	0.0667	0.143	0.0239	0.0413	43.3%	7.34%
2.57		3	0	0	0	0	0	0	0	0	-2.44%

**CETIS Summary Report**

 Report Date: 20 Aug-14 09:33 (p 3 of 7)  
 Test Code: 099100 49302901 | 19-2094-0221

**OPPTS 850.1350 Chronic Invert (Mysid)**
**ABC Labs**
**F0 Mortality Pre Pairing Summary**

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Solvent Blank	3	0.122	0	0.413	0	0.233	0.0676	0.117	95.8%	0.0%
0	Negative Control	3	0.0238	0	0.126	0	0.0714	0.0238	0.0412	173.0%	-11.2%
0.198		3	0.0111	0	0.0589	0	0.0333	0.0111	0.0192	173.0%	-12.7%
0.365		3	0.033	0	0.116	0	0.0667	0.0192	0.0333	101.0%	-10.2%
0.676		3	0.0222	0	0.07	0	0.0333	0.0111	0.0192	86.6%	-11.4%
1.28		3	0.0667	0	0.149	0.0333	0.1	0.0192	0.0333	50.0%	-6.33%
2.57		3	0.0778	0	0.286	0	0.167	0.0484	0.0839	108.0%	-5.06%

**F0 Survival Entire Study Summary**

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Solvent Blank	3	0.444	0.318	0.571	0.4	0.5	0.0294	0.0509	11.5%	0.0%
0	Negative Control	3	0.421	0.295	0.546	0.367	0.467	0.0291	0.0505	12.0%	5.36%
0.198		3	0.467	0.384	0.549	0.433	0.5	0.0192	0.0333	7.14%	-5.0%
0.365		3	0.417	0.267	0.567	0.367	0.484	0.0349	0.0604	14.5%	6.21%
0.676		3	0.422	0.296	0.549	0.367	0.467	0.0294	0.0509	12.1%	5.0%
1.28		3	0.4	0.257	0.543	0.367	0.467	0.0333	0.0577	14.4%	10.0%
2.57		3	0.34	0.11	0.57	0.233	0.4	0.0535	0.0927	27.3%	23.5%

**F0 Survival Post Pairing Summary**

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Solvent Blank	3	1	1	1	1	1	0	0	0.0%	0.0%
0	Negative Control	3	1	1	1	1	1	0	0	0.0%	0.0%
0.198		3	1	1	1	1	1	0	0	0.0%	0.0%
0.365		3	1	1	1	1	1	0	0	0.0%	0.0%
0.676		3	0.976	0.874	1	0.929	1	0.0238	0.0412	4.22%	2.38%
1.28		3	0.974	0.864	1	0.923	1	0.0256	0.0444	4.56%	2.56%
2.57		3	1	1	1	1	1	0	0	0.0%	0.0%

**F0 Survival Pre Pairing Summary**

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Solvent Blank	3	0.878	0.587	1	0.767	1	0.0676	0.117	13.3%	0.0%
0	Negative Control	3	0.976	0.874	1	0.929	1	0.0238	0.0412	4.22%	-11.2%
0.198		3	0.989	0.941	1	0.967	1	0.0111	0.0192	1.95%	-12.7%
0.365		3	0.967	0.884	1	0.933	1	0.0192	0.0333	3.45%	-10.2%
0.676		3	0.978	0.93	1	0.967	1	0.0111	0.0192	1.97%	-11.4%
1.28		3	0.933	0.851	1	0.9	0.967	0.0192	0.0333	3.57%	-6.33%
2.57		3	0.922	0.714	1	0.833	1	0.0484	0.0839	9.1%	-5.06%

**F1 Survival Summary**

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Solvent Blank	3	0.933	0.646	1	0.8	1	0.0667	0.115	12.4%	0.0%
0	Negative Control	3	1	1	1	1	1	0	0	0.0%	-7.14%
0.198		3	1	1	1	1	1	0	0	0.0%	-7.14%
0.365		3	0.978	0.882	1	0.933	1	0.0222	0.0385	3.94%	-4.76%
0.676		3	0.956	0.86	1	0.933	1	0.0222	0.0385	4.03%	-2.38%
1.28		3	0.625	0	1	0	1	0.315	0.545	87.2%	33.0%
2.57		1	1			1	1	0	0	0.0%	-7.14%

**n Offspring Per Female Summary**

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Solvent Blank	3	14.1	-4.94	33.1	6.4	21.7	4.42	7.65	54.4%	0.0%
0	Negative Control	3	12.7	1.96	23.5	9.7	17.7	2.5	4.34	34.1%	9.48%
0.198		3	3.2	1.82	4.58	2.6	3.7	0.321	0.557	17.4%	77.3%
0.365		3	11.3	10.7	11.8	11	11.4	0.133	0.231	2.05%	19.9%
0.676		3	14.6	-13.9	43.1	4.7	27.2	6.63	11.5	78.4%	-4.03%
1.28		3	8	-8.39	24.4	1	14.1	3.81	6.6	82.5%	43.1%
2.57		3	0.19	-0.628	1.01	0	0.57	0.19	0.329	173.0%	98.6%

**CETIS Summary Report**Report Date: 20 Aug-14 09:33 (p 4 of 7)  
Test Code: 099100 49302901 | 19-2094-0221**OPPTS 850.1350 Chronic Invert (Mysid)****ABC Labs****Time to First Brood Summary**

C- $\mu$ g ai/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Solvent Blank	3	18.2	15.4	20.9	16.9	18.9	0.636	1.1	6.06%	0.0%
0	Negative Control	3	17.9	12.6	23.2	15.7	20	1.24	2.15	12.0%	1.47%
0.198		3	17.7	15.6	19.8	16.7	18.3	0.491	0.85	4.81%	2.75%
0.365		3	18.5	10.2	26.7	15.6	22.1	1.92	3.32	18.0%	-1.65%
0.676		3	19	10.6	27.3	16.5	22.8	1.94	3.37	17.7%	-4.4%
1.28		3	21.8	10.9	32.8	18.1	26.7	2.55	4.41	20.2%	-20.2%
2.57		1	17			17	17	0	0	0.0%	6.42%

**CETIS Summary Report**

**Report Date:** 20 Aug-14 09:33 (p 5 of 7)  
**Test Code:** 099100 49302901 | 19-2094-0221

**OPPTS 850.1350 Chronic Invert (Mysid)****ABC Labs****F0 Female Dry Weight Detail**

C- $\mu$ g ai/L	Control Type	Rep 1	Rep 2	Rep 3
0	Solvent Blank	1.41	1.45	1.48
0	Negative Control	1.5	1.38	1.66
0.198		1.51	1.36	1.3
0.365		1.34	1.48	1.55
0.676		1.34	0.996	1.56
1.28		1.21	1.49	1.41
2.57		1.14	0.932	0.961

**F0 Female Length Detail**

C- $\mu$ g ai/L	Control Type	Rep 1	Rep 2	Rep 3
0	Solvent Blank	6.31	6.17	6.47
0	Negative Control	6.19	6.21	6.29
0.198		6.49	6.38	6.45
0.365		6.58	6.34	6.44
0.676		6.22	5.64	6.37
1.28		6.15	6.39	6.26
2.57		6.15	5.9	5.89

**F0 Male Dry Weight Detail**

C- $\mu$ g ai/L	Control Type	Rep 1	Rep 2	Rep 3
0	Solvent Blank	1.05	1.08	1.07
0	Negative Control	1.28	1.04	1.11
0.198		1.02	1.02	1.17
0.365		1.11	1.16	1.08
0.676		1.07	0.888	1
1.28		0.933	0.918	1.07
2.57		0.969	1.01	0.826

**F0 Male Length Detail**

C- $\mu$ g ai/L	Control Type	Rep 1	Rep 2	Rep 3
0	Solvent Blank	6.14	6.08	6.22
0	Negative Control	6.24	6	6.09
0.198		6.06	6	6.17
0.365		6.12	6.33	6.14
0.676		6.08	5.82	5.96
1.28		5.9	5.88	6.24
2.57		5.73	6.05	5.7

**F0 Mortality Entire Study Detail**

C- $\mu$ g ai/L	Control Type	Rep 1	Rep 2	Rep 3
0	Solvent Blank	0.0333	0	0
0	Negative Control	0.0357	0	0
0.198		0	0	0
0.365		0	0.0667	0.0333
0.676		0.0333	0.0333	0.0333
1.28		0.0667	0.0333	0.0333
2.57		0	0	0

**CETIS Summary Report**

**Report Date:** 20 Aug-14 09:33 (p 6 of 7)  
**Test Code:** 099100 49302901 | 19-2094-0221

**OPPTS 850.1350 Chronic Invert (Mysid)****ABC Labs****F0 Mortality Post Pairing Detail**

C- $\mu$ g ai/L	Control Type	Rep 1	Rep 2	Rep 3
0	Solvent Blank	0.0714	0	0
0	Negative Control	0.0714	0	0
0.198		0	0	0
0.365		0	0.133	0.0714
0.676		0.0667	0.0714	0.0667
1.28		0.143	0.0769	0.0667
2.57		0	0	0

**F0 Mortality Pre Pairing Detail**

C- $\mu$ g ai/L	Control Type	Rep 1	Rep 2	Rep 3
0	Solvent Blank	0.133	0	0.233
0	Negative Control	0.0714	0	0
0.198		0.0333	0	0
0.365		0.0323	0	0.0667
0.676		0	0.0333	0.0333
1.28		0.0667	0.1	0.0333
2.57		0.167	0.0667	0

**F0 Survival Entire Study Detail**

C- $\mu$ g ai/L	Control Type	Rep 1	Rep 2	Rep 3
0	Solvent Blank	0.4	0.5	0.433
0	Negative Control	0.429	0.367	0.467
0.198		0.5	0.433	0.467
0.365		0.484	0.367	0.4
0.676		0.367	0.433	0.467
1.28		0.367	0.367	0.467
2.57		0.4	0.233	0.387

**F0 Survival Post Pairing Detail**

C- $\mu$ g ai/L	Control Type	Rep 1	Rep 2	Rep 3
0	Solvent Blank	1	1	1
0	Negative Control	1	1	1
0.198		1	1	1
0.365		1	1	1
0.676		1	0.929	1
1.28		1	0.923	1
2.57		1	1	1

**F0 Survival Pre Pairing Detail**

C- $\mu$ g ai/L	Control Type	Rep 1	Rep 2	Rep 3
0	Solvent Blank	0.867	1	0.767
0	Negative Control	0.929	1	1
0.198		0.967	1	1
0.365		0.968	1	0.933
0.676		1	0.967	0.967
1.28		0.933	0.9	0.967
2.57		0.833	0.933	1

**CETIS Summary Report**Report Date: 20 Aug-14 09:33 (p 7 of 7)  
Test Code: 099100 49302901 | 19-2094-0221**OPPTS 850.1350 Chronic Invert (Mysid)****ABC Labs****F1 Survival Detail**

C- $\mu$ g ai/L	Control Type	Rep 1	Rep 2	Rep 3
0	Solvent Blank	1	1	0.8
0	Negative Control	1	1	1
0.198		1	1	1
0.365		1	0.933	1
0.676		1	0.933	0.933
1.28		0.875	1	0
2.57			1	

**n Offspring Per Female Detail**

C- $\mu$ g ai/L	Control Type	Rep 1	Rep 2	Rep 3
0	Solvent Blank	14.1	6.4	21.7
0	Negative Control	17.7	10.8	9.7
0.198		2.6	3.7	3.3
0.365		11.4	11	11.4
0.676		27.2	4.7	12
1.28		14.1	8.9	1
2.57		0	0.57	0

**Time to First Brood Detail**

C- $\mu$ g ai/L	Control Type	Rep 1	Rep 2	Rep 3
0	Solvent Blank	18.7	16.9	18.9
0	Negative Control	15.7	18	20
0.198		16.7	18.3	18
0.365		15.6	17.7	22.1
0.676		16.5	17.6	22.8
1.28		18.1	20.7	26.7
2.57			17	